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# A NETNOGRAPHY STUDY OF MOOC COMMUNITY

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## Abstract

*Massive online open courses (MOOC) are one of the widely used groups of online education and have been thought of as a key factor in future education. In recent years, there has been an increasing interest in MOOC from education and information systems researchers. In this paper, the aim is to observe MOOC in their natural setting to examine a particular community of MOOC by drawing on the concepts of communities of practice as a theoretical lens. One of the most significant current discussions on MOOC is Coursera. Questions have been raised about the structure of an emergent type of community within MOOC. However, far too little attention has been paid to study community of practice in this type of online education. The authors conducted an online ethnographic study on a sample of discussion forums of Coursera. Discussions were qualitatively content analyzed in order to understand the structure of an emergent type of community within MOOC. Our findings suggest that cohesion in a MOOC community is brought about by the domain of doubts, questions, new knowledge, experiences and the community of learners who meet people around the world with similar interests; the practices of documents, information, ideas, stories, experiences and software sharing. The combination of forces for MOOC community are global, free and online education identity of community which provides great materials, top professors, mass participation and certificates from top universities; voting system for warrant; movement of new comers from peripheral to the core of community by contributing more in discussions.*

*Keywords: Massive online open courses (MOOC), knowledge sharing, community of practice, Netnography, Coursera.*

# 1 INTRODUCTION

The advent of the internet has created new possibilities for education. Massive online open courses (MOOC) are an important component in the current education system and play a key role in the future of education. Recently, researchers have shown an increased interest in MOOC. The past three years have seen increasingly rapid advances in the field of MOOC. In 2011, Thompson defined MOOC as “a model of educational delivery that is, to varying degrees, massive, with theoretically no limit to enrollment; open, allowing anyone to participate, usually at no cost; online, with learning activities typically taking place over the web; and a course, structured around a set of learning goals in a defined area of study.”(Thompson, 2011). Each characteristic of MOOC indicates that it is to be considered a community. So far, however, there has been little discussion about MOOC as a community of practice. In addition, forums have been identified as a major avenue connecting MOOC learners with each other. In this paper our focus is on an asynchronous discussion forum of MOOC. Effective interactions of learners in discussion forums support student learning(Balaji & Chakrabarti, 2010). In addition student-student interaction in online discussion forum reinforces their feeling of being part of an online learning community(Balaji & Chakrabarti, 2010). This paper will give an account of the structure of an emergent type of community known as within Coursera as representative of a common MOOC. Knowing the structure of the community help to recognize and cultivate community of practice. The participation in CoP is voluntary and can be encouraged. The essay has been organized in the following way. First, it discusses MOOC and the theoretical dimensions of this research. This is followed by a look at social theory of learning or community of practice and a description of online ethnography or Netnography as our methodology for data collection. The last section is data analysis and result.

## 2 LITERATURE

Over the past three years much more information has become available on MOOC. Numerous studies have attempted to explain this new paradigm of education (for example, (Thompson, 2011), (Hill, 2012), (Kukharensko, 2013), (de Waard et al., 2011), (Liyaganawardena, Adams, & Williams, 2013), (Yuan & Powell, 2013), (Gaebel, 2013), (McAuley, Stewart, Siemens, & Cormier, 2010), (Stevens, 2013), (Little, 2013), (Bernhard, Bittel, Vlies, Bettoni, & Roth, 2013) ). Several attempts have been made to define this new term and discuss the different types and identification of the theories as pointed in MOOC studies. In 2013, Stevens published a paper in which he demonstrated a complete definition of MOOC (Stevens, 2013):

“A MOOC is a massive open online course. Cormier articulated a serviceable short definition of the concept in a Hangout with Jay Cross, George Siemens, Stephen Downes, and others, entitled “Business and MOOCs” , elaborating on each part of the acronym:

- Massive – about scale
  - Relies on increased chance of interaction from a critical mass of participants
  - Massive allows knowledge to derive more from participants, and less from top down
- Open – not just free, but
  - Open access
  - Open syllabus, flexibly allows participants to drive their own learning
- Online – this is essential
  - Internet introduces abundance
  - Completely different playing field from one based on scarcity
- Course –
  - Has structure
  - Cohesion based in experience of facilitators

As an essential component of an effective online course are forums which provide the main part of asynchronous communication (Mak, Williams, & Mackness, 2010). In 2010, Mak and et al. pointed to forum as a communication and learning tool in a MOOC (Mak, et al., 2010). Learners obtain knowledge through interaction of knowledge and experience via online discussion as a learning environment (Harasim, 1993). Thus online forum can be considered as a base for online education (Salmon, 2004).

To achieve our research objectives, we examine an online discussion forum that has been considered as Coursera community forum. Therefore, this research is based on the posts available in the archives of the forum, learners' points of view and our observations. For the organization of data collection and analysis of data, we use a theoretical lens which is based on communities of practice (CoP) (Etienne, MacDermott, & Snyder, 2002; Lave & Wenger, 1998; Etienne Wenger, 1998). A community of practice is a combination of three main elements: domain, community and practice (Etienne, et al., 2002).

### **3 THEORETICAL LENS**

In this section our theoretical lens which is derived from the CoP studies is presented. Communities of practice are everywhere and we belong to different communities of practice at school, at home, at work and in our hobbies (Etienne Wenger, 1998; E. Wenger, 2009; Etienne Wenger, 2011). CoP is defined as "a group of people who share an interest in a domain of human endeavor and engage in a process of collective learning that creates bonds between them" (Etienne Wenger, 2001). A CoP is a unique set of three main elements including a community of people who are interested in the domain, a certain domain of knowledge that illustrates a set of issues, and the shared practice which is developing to be useful in their domain (Etienne, et al., 2002). Based on literature, CoP can define such phenomena as the result of four different forces which can be conceptualized as identity, knowledge sharing, warrant mechanisms and legitimate peripheral participation (LPP) (Silva, Goel, & Mousavidin, 2009).

Participants in a CoP develop an identity insofar as they are members of the community (Lave, 1991; Etienne Wenger, 1998). This is an attractive concept since it implies that to be considered as skillful and knowledgeable is one of the incentives for joining a COP or maintaining its membership (Silva, et al., 2009).

Knowledge is the attribute that upholds cohesion of Cop and attaches it together (Brown & Duguid, 1998). Knowledge is understood as socially constructed and situated (Lave & Wenger, 1991; Luckmann & Berger, 1991); (Richardson, 1997) which means that it is rooted in the institutionalized practices of a community. These practices are the main sources for its members and comprise its identity (Lave & Wenger, 1998). The concept of warrant in the Legitimate Peripheral Participation (LPP) is fundamental since without it, the CoP would lack legitimacy for its presentation to newcomers (Garud & Rappa, 1994). It was in 2009 that Silva et al. (Silva, et al., 2009) presumed that blog communities build up their own evaluation routines or warrants which help them to determine content relevancy and genuine participation. To test this presumption, they focused on illustrating the development of these warrants and the way they are implemented.

Based on Lave and Wenger's description (1991), a CoP's new members at first only observe the relevant practices of others and as time passes they get involved in the practices more and more which is known as "legitimate peripheral participation" (LPP) (Lave & Wenger, 1991). As newcomers move from periphery to the core of a CoP and become old-timers, learning and knowledge transfer occur (Brown & Duguid, 1998). Silva et. al (2009) tried to identify the process in which newcomers become old-timers and legitimate participants. Therefore, they tried to find the mechanisms which differentiate illegitimate and legitimate participants. Here, we posit that these four concepts are able to assist us in understanding the constitute structure of emerging CoP in MOOC in addition to unraveling the social practices that form a community in MOOC.

## **4 RESEARCH METHODOLOGY**

As the internet has become a common medium in our life, many people use online communities like blogs, social network sites, forums and virtual worlds. Netnography is ethnography study which is done over the internet; it is a method to study cultures and communities online (Bowler Jr, 2010). Ethnography means discovery and description of the culture of a group of people (Johnson & Christensen, 2007). Culture components include shared beliefs, values, perspectives and practices; it also includes norms, language and artifacts which are used by members of the group in understanding their environment and in relation to others (Johnson & Christensen, 2007). For the purpose of our research, the best method is to adopt Netnography as qualitative research approach. In this study the author studied one course in Coursera and observes the learners engaged in it and consider technology as a main factor in providing an environment in which people can be linked to one another. The major steps of Netnography are listed in Kozinets's book (Kozinets, 2010) and we follow those steps. Six steps of ethnography followed by Netnography are: research planning, entrée, data collection, interpretation, ensuring ethical standards, and research representation (Kozinets, 2010).

### **4.1 Site choice and entrée**

In recent years, there has been an increasing amount of literature on online education (Cross, Bayyapunedi, Cutrell, Agarwal, & Thies, 2013; Davies, 2012; Friedman, 2013; Markoff, 2012; Welsh & Dragusin, 2013). In 2012 Davies listed Khan academy, Coursera, Udacity and edX as major players in online learning (Davies, 2012). Based on Kozinets guidelines for site choice and entrée, a site should be relevant to our research focus, and it should be active, interactive, substantial, heterogeneous and data-rich (Kozinets, 2010). Matching these criteria, we chose Coursera as our targeted community.

### **4.2 Ethics**

Kozinets pointed to some procedures to address ethics in Netnography (Kozinets, 2010): to identify yourself and inform about your research, to ask permission, to gain consent, to cite and credit culture members. In regard to "To identify yourself and inform about your research" we completed a profile in Coursera based on real name, affiliation and a little about our research. Allen et.al suggested two ways to apply Netnography research in the study of community or culture on these sites (Allen, Burk, & Davis, 2006):

- To notify the company that research is being done by sending a message to a group, or persons within the research scope.
- To provide a description of research as, for example, on web pages that describe the research progress.

In this research we prepared a personal web page to provide a more detailed description of our research which will be completed during the course of the research.

The next step is to gain consent. In this concern Kozinets indicated Netnographer is like other site members and interacts like other members but with the difference that he takes field notes of his experiences (Kozinets, 2010). This interaction does not require consent but for synchronous interactions, researcher should gain consent. For this purpose consent form can be sent electronically (Kozinets, 2010). We will use this technique if we have such interaction in our research. The next step is to define the extent of cloak: uncloaked, minimum cloaked, medium cloaked and maximum cloaked (Kozinets, 2010). We choose minimum cloaked situation in which the community name is given but personal names are changed, resulting in a minimal probability of harm (Kozinets, 2010).

### **4.3 Data collection**

Data collection in Netnography involves collection of three types of data: archival data, elicited data and field note data. We began our data collection process by entering “Learn to Program: The Fundamentals” course in <https://www.coursera.org/Online> education community. The author had enrolled in this course and had participated in classes from 19 August 2013. As a member of this community, the author attended classes, completed quizzes and participated in discussion forums. Posts were chose from the study group section of discussion forums. Archived data consists of 336 posts of “Beginners Study Group” in this course. This thread is in English and the common study group gained the most points from learners. Our elicited data consists of online interview via Google Forums which is shared via Facebook page and one post in discussion forum. In this course we can collect eleven interview forms, and for saturation purpose we will take another course to collect more data. Our field notes include our observations of the community, its members, interactions and meanings, and the researcher’s own participation and sense of membership.

### **4.4 Data analysis and interpretation**

Organizing and coding the data is the next step. We used a qualitative data analysis tool called NVivo. Archived posts corresponded to one document in NVivo. In addition, interview data and our documentation from Coursera such as insights about community were also saved as NVivo documents. In order to code our data, we drew on the three components of our theoretical framework – identity, warrants, and LPP and three main elements of CoP– domain, community and practice. In NVivo, these codes correspond to ‘nodes’. There are two types of data analysis in Netnography: analytic coding and hermeneutic interpretation(Kozinets, 2010). Our codes are based on middle-range coding. We used both Top-down coding in which codes from literature are applied to data and bottom-up coding in which codes are suggested by data(Urquhart, 2013). Hermeneutic interpretation consists of deeper meaning of posts and explanation not description.

## **5 RESULT**

In this section we present the result of our analysis. Results include analysis of elicited data (or interview data) in relation to three elements of structure of CoP, and analysis of archived and elicited data related to theoretical lens from the CoPs studies. To organize our analysis we correlate them in structural model of CoP: domain, community, practice and theoretical framework components: identity, knowledge sharing, warrants and LPP. We coded all data based on these concepts. Knowledge sharing concept will be studied more in our future research based on two theoretical frameworks. Thus in this study we focused on three other elements. We present some main quotes from our data. A summary of our findings along with their relation to theory and data is presented in Table 1, 2, 3.

Concepts	Illustrative Data	Analytical Generalizations
Domain	<p>“I can solve my own doubts”, “knowledge and doubts are cleared”, “it helps to find out a solution when I am stuck and also determines where do I stand in the course at a particular time”, “Discussion forums help to solve doubts that arise in mind and certain software installation related problems!”, “I can ask my questions and receive help”, “I also gain new knowledge from other contributors.”, “I gain experience from other users who are willing to share it with me”, “I gained a lot of experience”, “learn from other discussions. “</p>	<p>Coursera learners participate in discussion forum to:</p> <ul style="list-style-type: none"> <li>• Resolve their doubts and questions,</li> <li>• Gain new knowledge and experience</li> <li>• Make new friends with similar interests and to enforce companionship.</li> </ul>
	<p>“If you devote enough time to the forums you start to feel like part of a bigger community”, “although I do have very little time to participate it helps a lot and It feels like we are all on the same boat so yes”, “because it makes me feel useful”, “because it brings the learners closer”, “when you are interacting with an unknown person over the same problem or a person who gets you a solution then a sense of belonging is likely to develop.”</p>	<p>Coursera learners need enough time to spend on Coursera community to feel a sense of belonging. The main factors that discussion forums use to influence a sense of belonging are:</p> <ul style="list-style-type: none"> <li>• Make learners feel they are all the same.</li> <li>• Make learners feel useful.</li> <li>• Make learners closer.</li> <li>• Make interaction with unknown people who share similar interests.</li> </ul>
Community	<p>“The community is nice and helpful.”, “The fact that I meet helpful guys on the forums”, “there are lots of nice people there who want to help...I really want to participate in the forums”, “each community thread deals with a particular problem domain which helps a lot to communicate quickly and easily.”, “Whenever there is a doubt and you are frustrated even after searching on Google, the best way is discussion forums!”, “It is a great way to broaden one's horizons, meeting people from around the world who share an interest with you is very exciting”, “Gives a sense of shared experience”, “Whenever there is a doubt and you are frustrated even after searching on Google, the best way is discussion forums!”, “makes u feel like u r in areal classroom”,</p>	<p>A discussion forum encourages learners to share their ideas and ask questions because it:</p> <ul style="list-style-type: none"> <li>• Is a helpful environment.</li> <li>• Possible to meet people from around the world with similar interests, same doubts.</li> <li>• Makes learners feel helpful.</li> <li>• Creates a concept of community.</li> </ul>
	<p>“Bound by the Coursera forum rules and community bonds”, “It is based on my concept of good manners and civility, politeness.”, “relationship is good with a few active known like-minded persons in the threads.”, “Basically there are some learners who are always willing to help and thus there is a trust.”</p>	<p>Some disrespectful behavior has been seen but it is rare. They believe their relationships are based on respect because of:</p> <ul style="list-style-type: none"> <li>• Active known like-minded persons who are always willing to help</li> <li>• Good manners and civility, politeness</li> <li>• Friends</li> <li>• Coursera forum rules and community bonds</li> </ul>

	<p>“The discussion forums”, “Users asking questions when they are stuck at some point and users answering them...or at least giving a hint”, “if I see people share their real feeling and the experiences in learning and the problems and help others this create trust”, “Not sure, I think this is more related to the commitment of every student to honor the rules”, “especially when alternative groups are made on other social networks with the users from a course it generates more trust because we speak more with each other”, “a response from the TA's or instructors or known friends”</p>	<p>The Coursera learners believe some activities can create trust such as:</p> <ul style="list-style-type: none"> <li>• Commitment of every student to honor the rules</li> <li>• Discussion forum and asking and answering questions in discussion forum</li> <li>• Social network</li> <li>• Help from Teacher, Teacher Assistant or friend</li> </ul>
Practice	<p>“Documents and information”, “Ideas, information and stories.”, “Share some ideas, some nice software like better IDEs and extra information on some topics.”, “I would like to share my ideas, information, experiences and documents that I have and can help others in this course”, “I would like if we would have team assignments and special places on forums to discuss them”, “it would be nice if there was any teamwork, ”, “Forums should be open to anything, they work just fine how they are at the moment.”, “whatever people need help in and I have a clue about”.</p>	<p>Coursera learners would like to exchange practices such as: documents, information, ideas, stories, experiences and software. Some believe it should be open to exchange anything. Some recommended team work and peer review of team practices.</p>

Table 1. Summary of findings (elicited data) related to domain, community and practice

Concept	Illustrative Data	Analytical Generalizations
Identity	<p>“The idea of a virtual classroom offering free worthwhile”, “open online education”, “great courses by great professors”, “top lecturers, good materials”, “interacting with other Courserian”, “mass participation from people all over the globe”, “Active users on forums who are willing to help other users properly understand the course they are taking”, “starting the course from the very beginning of the subject to be understood by the lay man”, “projects , tests and quizzes strengthen the concepts”, “instructors and TA's are very helpful”, “certificate from top universities”</p>	<p>The identity of a community is contingent upon:</p> <ul style="list-style-type: none"> <li>• Free and online class</li> <li>• Great materials and top professors with a great way of teaching</li> <li>• Availability of courses for beginners</li> <li>• project, test, quiz</li> <li>• Teachers and Teacher assistants</li> <li>• Mass participation between active and willing users around the world</li> <li>• Top university certificate</li> </ul>
	<p>“If it helps me solve a problem, then it is useful. Usually they give me an idea or advice on a particular problem I'm having.”, “or if what it says actually does make sense.”, “but it is useful if it offers me the information that I need”, “If it helps me in terms of</p>	<p>All the learners state they vote for a post if it is important to them. The formation of warrants for detecting valuable from invaluable posts is problematic; learners</p>

Warrant	<p>what I am looking for”, “It answers some of the questions I have”, “If the question is what I am looking for”, “If it has lots of votes”, “the number of votes for one post”, “sometimes TA accept the post or teacher or other learners thank that post”</p>	<p>detect useful posts if a post:</p> <ul style="list-style-type: none"> <li>• gives an idea and helps to solve a problem</li> <li>• is in top posts or has high votes</li> <li>• is accepted by teacher, teacher assistant and other learners.</li> </ul>
	<p>“I up vote posts that give insight and correct/useful answers to queries”, “As per comments above.”, “I vote them if I found them useful”, “I vote them because I find useful”, “Yes, the high the up votes, that is considered to be the most accurate solution.”, “I vote posts in discussion forum because it makes me express myself”, “sometimes it shows my agreements”, “sometimes it shows my thankfulness”, “I down vote incorrect or misleading posts”, “I vote posts that are interesting”, “and because I want to encourage good posts”, “I want to encourage people who take their time to answer”, “wish to know who has voted me up.”, “if I post some help or questions and receive vote it encourage me to be active, it is like incentive for me. ”</p>	<p>Learners up vote some posts in discussion forum because:</p> <ul style="list-style-type: none"> <li>• They are correct, useful and interesting answer, they give insight</li> <li>• To express our agreement and thankfulness</li> <li>• To encourage good posts and make them important</li> </ul> <p>They down vote:</p> <ul style="list-style-type: none"> <li>• incorrect and misleading posts</li> </ul> <p>The learners who receive votes feel wonderful and they are eager to know who voted them up. Indeed, voting system can be an incentive for learners.</p>
	<p>“I check the answers myself, either through comparison with my own knowledge about the subject or by using them and checking the results I get (in case of practical problems).”, “based on my judgment and understanding”, “I check the content of the post.”, “I can't distinguish until I implement it.”, “It is very difficult, but I guess that the wrong answers would be those with less votes”, “With Coursera, the voting system helps indicate what others think of the response / post.”, “up/down votes.”, “the other way is the total votes that they earn during this course or other courses.”, “the other way is the total votes that they earn during this course or other courses.”, “Through comments of other people”, “Is it someone who seems to have been offering helpful or useful opinions in the past? ”, “some people take times in discussion forums to help others, they are so active and try to help in the best way, by reading the posts I can detect them”</p>	<p>They are two groups in Coursera community, old-timers or helpful people and newcomers. Learners can distinguish right and wrong answers of people by:</p> <ul style="list-style-type: none"> <li>• Checking the answer by their judgment (compare with their knowledge, use and check)</li> <li>• voting system</li> <li>• others' comments</li> <li>• Known people with past helpful posts and comments.</li> </ul>
	<p>“Both reading about others issues and contributing answers and topic discussions.”, “Participating on de</p>	<p>Newcomer learners in Coursera community can become old timer</p>

LPP (legitimate peripheral participation)	<p>discussions”,  “doing readings n following instructions and putting in extra efforts”, “By participating more and more.”,  “participation, considered”, “by providing a proper and useful solution to the posts in the forum.”, “help others”, “  It's related to how much time does the beginner has to spend in the boards”, “Time”, “polite responses”, “good manner in virtual environment”, “by gaining as much from their peers”, “by learning from other users experience”, “If he helps people by searching on Google and posting the essential information on the forums.”</p>	<p>members in community by:</p> <ul style="list-style-type: none"> <li>• Reading discussions and contributing, helping and sharing their experiences.</li> <li>• Spending more time on discussion forum.</li> <li>• Having polite responses and good manner.</li> <li>• Learning from others' experiences.</li> <li>• Using the internet to search and to help others.</li> </ul>
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Table 2. Summary of findings (elicited data) - theoretical framework components: identity, warrants and LPP

From coding our archived data based on theoretical framework components we can extract these findings in the table below for each component except knowledge sharing component which will be studied in our future study.

Concept	Illustrative Data	Analytical Generalizations
Identity	<p>“If I can help you, it will be a pleasure. :)”, “I also love foreign languages, so any Russian or Korean speakers who need help with English, I need help with either of the two.”, “There are also some guidelines for asking for help which you can see here:[How to get help]”, “I've put up a play app I wrote a week or two ago here: <a href="https://c9.io/mrpeach">https://c9.io/mrpeach</a>”, “refer to this <a href="http://vimeo.com/72881031">http://vimeo.com/72881031</a>”, “There is a link to the textbook on the Resources page (on the menu on the left hand side. You can access it on this page.”, “You can read posts about this matter here <a href="https://class.coursera.org/programming1-002/forum/thread?thread_id=720">https://class.coursera.org/programming1-002/forum/thread?thread_id=720</a> .Also you can check my post, I added a link to speed comparison between languages :)”</p>	<p>Identity in community of practice can be related to community of individual. In regard to community identity, from the archived posts in Coursera we found that accessing global education can enforce identity of community. For identity of learners, we found posts which show their eagerness to help and providing material links and helping others which all can enforce one learner identity in community.</p>
Warrant	<p>131votes received, 8votes received, 1votes received, 2votes received, 13votes received, -3votes received...</p>	<p>Voting on posts by learners shows the voting system is a major warrant in distinguishing valuable and invaluable posts.</p> <p>Starting groups by teacher assistant is a factor which makes a group common and top.</p>
	<p>“Somehow I missed this. Count me in; I have no idea about programming.”, “I am missing something, how do I join this group?”, “Count me in too, please! :)”, “Hi guys, count me in.</p>	<p>There are two groups in community: new comers and old</p>

	<p>I need help”, “thats good post there Jim :)”, “Thanks a lot Nick, after seeing the map and studying it, the code came up easily :)”, “Rae Your posts are inspiring. I will try following your suggested approach in the morning. Maybe lightning will strike. Thank you for your suggestions”, “I think this course will be good and thanks for creating a forum for us to study in”,” For me, the new instructions in Step 2 help a lot - I need the specific instructions as to what line to put the return ....”, “I’ve done all the lectures, and the exercise. Now, I’m reading the relevant chapters in the textbook before moving onto the assignment.”, “What I’ve been saying is: I wrote exactly that spelt out on the video lecture code on my Python shell and my return key does not return with a prompt cursor. However when I close the ...”, “Can the sample answers be posted after the due date? So that we can compare our answers?”, “but I have a doubt, I want to know if is possible download subtitles in other languages...”, “Somebody from Philly?”, “I live about 30 miles north of LA”, “any french people there?”, “I can code in Java but very little Python. ”, “I’m an experienced programmer in Python 2, but not 3 &amp; I have the challenge that in a few weeks’ time I will ...”, “Does anyone here knows of any later version for pygraphics for python 3.3. If you know, please help... thanks!”, “Hi! I have no problems with English, but if you will have problems with Russian feel free to ask.”, “I hope everybody will work together as a team for the benefits of all members.”</p>	<p>timers. The posts by new comers show:</p> <ul style="list-style-type: none"> <li>• willingness</li> <li>• thankfulness</li> <li>• statement of their sense, progress and answer others problems</li> <li>• ask about others' progress, questions and ask for others help</li> <li>• their experience</li> <li>• interested to share their nationalities</li> <li>• eager to help and work together</li> </ul>
LPP	<p>“Are you over 66 1/2, which is my age? :)  1) Click Assignments in the left column of this page; it takes you to this page when you click the large, blue button that’s says ...”, ““One function in a1.py, called "to_24_hour_clock", is complete. Scroll down to it and see what it is doing. The difference between it and the incomplete function definitions give a good hint about what is required to complete them." After completing Assignment1 successfully on my own, when I went through the ...”, “Do you mean Week 1 lectures? It's on the left side, "Video Lectures" and you should be able to see the videos, lecture notes, etc. If you mean Week 2 lectures, I don't think they're up yet. HTH!”, “Teresa, just hang in there, and just do the best that you can. No one is asking for anything more. There's really no need to un-enroll...”, “You're welcome. We are all here to help each other. Take your time with it. You don't have to complete all the steps at once. Let me know how you get on with this approach.”, “Sorry I went to sleep after my previous post. If you haven't resolved the issue, can you copy / paste the code you are ...”, “I cannot resolve the problems directly for you. It is against the honor code for me to do that.”</p>	<p>Old-timer posts show they:</p> <ul style="list-style-type: none"> <li>• provide help</li> <li>• provide encouragement</li> <li>• care about someone</li> <li>• follow an honor code</li> </ul>

Table 3. Summary of findings (archived data) - theoretical framework components: identity, warrants and LPP

From our field note data we can conclude (I) voting in Coursera shows that learners’ willingness to help someone who asked for help or to vote for someone who is eager to help is a kind of thanks and this type of vote can improve the identity of the individual. The other type is to show agreement on issues pointed out by others. (II) Statements like "thanks" to a group creation can increase warrant of group study. (III) We think answering others' questions increases our identity in community and we can move from the periphery to the center of the community. (IV) In forum we witness some old people who can do programming without any knowledge about it and just via forum help they can follow guidelines, this sounds interesting. Votes for this person's post absolutely provide

encouragement. (V) Sometimes misunderstanding between people causes conflict between them; for example they argue and give negative vote to their posts. We think some people are not prepared to discuss issues in an academic environment and they just like to fight and disturb others identity.

Some people are very patient in virtual and try to help others. For example, in one case an individual offers to help but the other person did not understand the offer. In the end the newcomer understood the help and appreciated the patience of the individual trying to help.

## 6 DISCUSSION

We have conducted an interpretive study of MOOC, Coursera community. The summary of our main data, their relation to theory and findings are presented in table 1, 2, 3. We have identified the practices, values, and warrants that construct the community. The results of this study indicate that Coursera community has the capability to be considered as Cop. This study uses a kind of methodological triangulation. Authors use archival posts, interview data and also observation data to find results. Findings from all show the same or similar findings.

### 6.1. Theoretical implications

The theoretical implications of our findings are presented in the form of analytical generalizations.

**Domain:** A domain of knowledge which defines a set of issues (Etienne, et al., 2002) in community of practice. Learners in Coursera MOOC participate in discussion forum to resolve their doubts and questions, gain new knowledge and experiences and make new friends with similar interests. The discussion forum enables learners to feel useful, to feel that they are all the same, and draws learners closer making it possible to interact with unknown people on the same domain.

**Community:** A community of people who care about the domain (Etienne, et al., 2002). The discussion forum helps learners share their ideas and ask questions because it creates a helpful community, it is possible for learners to meet people from around the world with similar interests, it makes learners feel helpful and it creates a concept of community. All learners believe that relationships and interactions are based on trust and respect. Some disrespectful manners have been seen but it is rare. They believe their relationships are based on respect because of: active known like-minded persons who are always willing to help, friends, good manners and civility, politeness and Coursera forum rules and community bonds.

**Practice:** the shared practice that people are developing to be effective in their domain (Etienne, et al., 2002). Coursera learners would like to exchange practices such as: documents, information, ideas, stories, experiences and software. Some believe it should be open to exchange anything. Some recommended team work and peer review of team practices.

**Identity:** Identity in community of practice can be related to the community or individual. In regard to identity of community, being a global education can enforce identity of community. For identity of learners their eagerness to help and providing material links and helping others all can enforce one's learner identity in community. The following features operate as the identity of a community: Free and online courses, great materials, top professors with a great way of teaching, availability of courses for beginners, quizzes, teachers and teacher assistants, mass participation between active and willing users from around the world, and certificates from top universities all play a role in creating identity of community.

Warrant: The formation of warrants for detecting valuable from invaluable posts is problematic; learners detect useful posts if a post gives ideas and helps to solve problem, if it is among the top posts or has high votes, if it is accepted by teacher, teacher assistant and other learners. Learners up vote some posts which are correct, useful and provide interesting answers and insights to learners, and they vote to express their agreement or thankfulness and to encourage good posts and make them important. The learners who receive votes feel wonderful for receiving these votes, and they are eager to know who voted them up. Indeed, voting system can be an incentive for learners. Voting on posts by learners shows the voting system is a major warrant to distinguishing valuable and invaluable posts. The other factor is that a warrant is created when one group is started by teacher assistant.

LPP: Newcomers are at the margin of the community and become old timers who are helpful people in community. Learners can distinguish right and wrong answers by checking the answer against their judgment and comparing it with their knowledge; they also can use and check the answer. Voting system is another option to distinguish between wrong and right answers. There are some people in community who are known for their posts thus they are known as old timers in the community. Newcomers can move from the margin to the core of community by reading discussions and contributing to them, spending more time in discussions, learning from others' experiences and using the internet to help others. In addition, their positive manner helps them to move to the core of community. The newcomers show their willing and thankfulness in their posts. They state their progress in learning and ask of others progress. They state their problems and try to answer others to some extent. In addition, they are eager to help and work together. The posts by old timers show their willingness to provide help, encourage other learners, their care for others and to follow honor codes.

## **6.2. Implications for practitioners**

These implications are intended for organizations or individuals interested in improving MOOC communities. The findings are based on our research in just one course. Thus, they are only the initial findings on this research. The current two major findings are:(I) importance of voting system in MOOC, thus adding some features to this system such as who votes for who and providing some profile features in regard to this system. Examples include how many votes each learner has to enforce identity and show warrant, (II) social networks or some facility to chat and private message. If the MOOC providers can consider this facility the connections between people can stand for a long time.

## **7 CONCLUSION**

Our findings have allowed us to answer our main research question: what is the structural nature of an emergent type of community within MOOC. In sum, we found that the identity of MOOC is initially proposed by its founder as a way of proposing free and great materials by top lecturers via the internet and to prepare certificates from top universities. It also establishes the defining practice of the community, that of exchanging documents, information, ideas, stories, experiences and software. Some learners are interested to team work and peer review of teams.

We found that the cohesion of the community depends on the effective approval of the warrants. It is through constant practice of MOOC that a newcomer becomes an old-timer. We found that using the elements of identity, warrant, and LPP of CoPs as our theoretical lens was helpful in identifying the structure.

One of the findings to emerge from this study is that MOOC can be considered as a community of practice because it is combination of three fundamental elements: a domain of knowledge, which answers their doubts and questions, allows them to gain new knowledge and experience and to make new friends with similar interests; a community of learners who meet people from around the world with similar interests, enabling learners to feel helpful, thereby creating a concept of community; and shared practices such as documents, information, ideas, stories, experiences and software sharing that are effective in their domain. To identify the structure of this community we used theoretical lens of CoPs which is based on three forces; global, free and online education. Availability of great learning material, top professors with great teaching methods, mass participation, top university' certificates all play a role in creating identity of community. The main part of warrants formation for detecting valuable from invaluable posts is done by voting system. Newcomers can move from the periphery to the community core by reading the discussions and contributing to them, spending more time on discussions, learning from others' experiences and using the internet to help others.

This research has shown that communication technologies such as forum can be a media by which community of practices is established and the identities of the learners and the community as a whole are created and enforced. Nevertheless, our understanding of the relation between information technologies and communities is only just beginning. This paper represents a modest contribution to the body of knowledge of such an emergent phenomenon in MOOC.

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