Being social or social learning?

A sociocultural analysis of the FutureLearn MOOC platform

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***Abstract*: MOOC environments seem to offer massive potential for social learning. However, MOOC environments have unique challenges for pedagogy which are not present in other socio-constructivist learning environments: the scale and diversity of participation. Many points of view are accessible, but few means of filtering. This paper examines interaction data from several MOOCs. Interaction data is an indicator for depth of learning in the sociocultural sense. Most conversations are seen to have surface level interactions. Platform and pedagogy affordances are suggested that may help deal with this.**

Keywords: MOOC, Social Learning, Vygotsky, End User Development Environments

I. INTRODUCTION

The sociocultural perspective of learning is grounded in Vygotsky's idea that higher level knowledge is necessarily socially created [1]. According to Vygotsky, functions of development will appear twice: firstly, in the 'intermental' where ideas are negotiated socially with a more experienced other, then in the 'intramental', when the ideas are internalised and relationships established in conceptual maps. Human, cultural or technological factors can act as barriers or enablers for participation.

Lapadat argues that the nature of participating in interactive forums can achieve good learning experiences, because "as writing composition typically demands higher order thinking process, there is great potential for conceptual change" [2]. This can only be achieved when the appropriate expectations for participation are set; the socio-constructivist learning model demands high quality participation from learners.

II. PAPER ORGANISATION

The paper is organized into a theoretical framework, analysing previous models and instruments for content analysis. The methodology describes how a model is implemented on FutureLearn. In the results section, the whole dataset is shown and then data from a specific MOOC is analyzed in more detail. There is a discussion of the results and the conclusion suggests areas of further research which would enhance this data or deliver further proofs.

III. THEORETICAL FRAMEWORK

De Wever et al. [3] detail 15 instruments for content analysis study: 'social-constructivism', 'community of inquiry' and 'knowledge construction' are the most common theoretical frameworks.

MOOC platforms must meet the dual challenges of low barriers to access meaning different 'levels' of user content, and also scale. There are a lot of diverse opinions; filters and notifications need to be developed in order that users can keep up with and make best use of others' contributions.

Due to these challenges, this paper follows the literature back to Henri's seminal paper on content analysis [4], which divides all discourse into 5 dimensions which describe the holistic nature of sociocultural learning. These are participative, interactive, social, cognitive and metacognitive. This paper will focus solely on the interactive dimension as an indicator of sociocultural learning through learners' interactive participation.

IV. METHODOLOGY

This study analyses 6 distinct courses across a range of subject areas, from English Literature to Virology. Several have been repeated several times totaling 10 instances.

Interaction in terms of conversation length is analysed across all 10 MOOC instances to indicate trends of sociocultural learning behaviour that occurs within the platform.

V. RESULTS

The total number of comments which are replies (in table 1) are further broken down into their composite conversations.

No MOOC contained more than 9 unique instances of conversations that exceed 10 replies in length, making up less than 1% of total conversations.

When the Dyslexia MOOC replies are aggregated into conversations there are 4893 unique conversations, but 84% of these contain either 1 or 2 replies. Less than 2.5% contain more than 5 replies. It is assumed that the length of these conversations is indicative of the depth of the sociocultural learning as defined by high quality interactive writing. The results suggest this is low.

The platform has controls to filter comments by most liked, replies and people I have 'followed'. You must find and

join a conversation to get any notification of updates to that conversation (either by email or by using the platform itself).

It more difficult for additional learners to join the conversation after a period of time when it moves down the comment stream, although if they do join the conversation they would receive a daily notification of updates to it.

TABLE I.

Comments, replies and conversations across all MOOCs

MOOC name	*Total comments*	*Original posts*	*Total replies*	*% of replies*	*Unique threads*
Corpus Linguistics 1	20046	10041	10005	49.91	4127
Corpus Linguistics 2	19556	12547	7009	35.84	3590
Corpus Linguistics 3	9600	6225	3375	35.16	1702
Food Security 1	20595	14956	5639	27.38	3202
Food Security 2	18822	12790	6032	32.05	2834
Dyslexia	44152	35638	8514	19.28	4893
Ebola 1	4892	3933	959	19.6	514
Ebola 2	1174	980	194	16.52	110
Soils	14347	10237	4110	28.65	1830
William Wordsworth	26156	18162	7994	30.56	3101

VI. DISCUSSION

Any online course is made up of 3 overlapping factors: the sociomaterial i.e. platform features, pedagogical factors i.e. the expectations set by the educators regarding what learners should do, and learner agency i.e. the actual choices of learners.

The results of this study indicate that the platform features rather than subject matter are the biggest factor for the low level interactions, and surface level of learning. Given that 5824 learners chose to 'be social' in the Dyslexia course, and 18991 across the 10 MOOCs, it seems unlikely that they all actively chose to have short conversations. It is more likely that this is to do with either their expectations as a MOOC learner or the platform features.

As the notifications on the platform will inform only active participants in a conversation about any replies to it, this restricts the possibilities for sociocultural learning which points towards the need for developing keyword/ hashtag searching for conversations as a necessary conversation discoverability feature.

There is a space for comments on each step, and therefore many opportunities for conversation; a different kind of pedagogical approach when setting expectations for sociocultural learning may be required. Learners clearly enjoy being social on the platform, as the lack of sociocultural knowledge construction does not deter learners from commenting. Learners may not know where it is appropriate to 'comment' and where it is appropriate to 'discuss'. This would support the conclusions of Lapadat [2] that expectations for participation need to be clear to create opportunities for written interaction that can support conceptual changes.

VII. CONCLUSION

MOOCs are different from other learning objects in that they are course events. This affords them far more potential as sociocultural learning environments. However, they differ from distance learning courses because of their openness and scale. A balance needs to be found for the levels of notifications for learners; too many notifications and learners will have overload issues; too few impairs the interactive potential of the platform.

This paper shows that the sociomaterial does seem to directly affect the depth of the interactions, as interactive trends suggest only surface level sociocultural learning. Further research is needed to establish the number of people involved in conversations. This would indicate if the notifications to only active participants in a conversation has and impact on social learning. Interactivity combined with multiple diverse points of view hold the most exciting potential for massive pedagogy; that is to say the dynamic between social discourse and individual cognition, as described by Mercer [6], but on a massive scale.

More research is needed to understand how learners can use each other most effectively. This is both in terms of developing tools for the online learning environment and in terms of the types of pedagogy which is suitable for massive participation.

A combination of platform features and pedagogical modifications is suggested to counter these challenges. MOOCs are informal learning spaces, so the aim is to enable greater learner agency.

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