



THE INFLUENCE OF THE SEX VARIABLE ON HOW PARTICIPANTS IN A MOOC PERCEIVE EMOTIONS

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Introduction

The analysis of how emotions influence the teaching-learning process is an instrument which, in recent years, has helped open new avenues for educational research and has also yielded interesting results. For example, it is suggested that the students' emotional engagement is an essential factor in their learning process (Wosnitza & Volet, 2005). With the advent of new online learning environments, interesting new studies have been published on the subject of emotions and their relation to learning development (Rebollo, García-Pérez, Barragán et al., 2008; Rebollo, García-Pérez, Buzón & Vega, 2014).

Although still incipient, the increase in the number of massive open online courses (also known as MOOCs) has also contributed to a line of research where the focus is on analysing how emotions influence the motivation and the learning outcomes of the people who take part in those courses. There are relatively frequent analyses of *affordance* and of the opportunities derived from it in the field of online learning (John & Sutherland, 2005).

One notable example of the analysis of emotions or *affordance* in MOOCs is Cheng's exploratory study of the emotional potentiality of a MOOC (2014). The author's conclusion was that emotions such as excitement and a desire to help other students play an essential role in the MOOC participants' learning process, which was defined as constructivist and focused on the interaction between the participants.

We should also highlight a study by Koutropoulos, Gallagher, Abajian et al. (2012) which set out to analyse the emotive vocabulary in a MOOC. More specifically, the study examined the emotive vocabulary in the MOOC's discussion forums, with a focus on words with an implicitly emotional meaning ("happy", "sad"...) or referring to emotional contexts (e. g. "I was not able to"). One of the main goals was to determine whether that emotive vocabulary could serve as a tool to predict the students' active and continued participation in the MOOC (in other words, not quitting the MOOC).

In line with this area of research, which is centred around the influence of emotions on different aspects of the learning process in MOOCs (e. g. active and continued participation), we are presenting a study about the perception of emotions during a MOOC organised in

2014 at the University of the Basque Country. The course structure was based on the cooperation between the participants through social networks.

Methodology and sample

The main goal of this study is to describe the variety of emotions felt by participants over the course of a MOOC. More specifically, we intend to carry out an emotional assessment of what the MOOC students felt. The pillar of this approach will be an independent variable: the participants' sex. In other words, we will analyse whether being a male or a female student has any influence on the emotional dynamics of learning in the context of a MOOC.

For the statistical analysis of the data we used version 22 of the SPSS software. Data were collected by means of a Likert-type questionnaire based on a validated model by Rebollo, García-Pérez, Buzón and Vega (2014), which was adapted to the context of a MOOC. The questionnaire was completed by the participants once the MOOC had finished and included 10 items divided into three categories depending on the type of emotion under discussion: 5 items were used to measure positive emotions (pride, satisfaction, enthusiasm, confidence and relief) and a further 5 items were used to measure negative emotions (insecurity, stress, worry, irritability and frustration).

Table 1: Summary of items in the questionnaire, as adapted by Rebollo-Catalán, García-Pérez, Buzón-García and Vega-Caro (2014)

Positive emotions	
Pride	"I am proud of how I have done in the MOOC."
Satisfaction	"I am satisfied that I completed the coursework correctly and on time."
Enthusiasm	"Doing this MOOC has encouraged me to learn more about the topics discussed."
Confidence	"I am confident that I have completed the MOOC correctly."
Relief	"I will feel relieved once the MOOC finishes."
Negative emotions	
Insecurity	"Doing the MOOC makes me feel insecure."
Stress	"I have felt stressed over the course of the MOOC."
Worry	"I have felt worried while doing the coursework and other activities in connection with the MOOC."
Irritability	"I have felt irritated over the course of the MOOC."
Frustration	"I have felt frustrated doing the MOOC."

The MOOC's title was "EHUMOOOC 2014. PLEs, MOOCs and digital content creation" (2nd edition). It took place over six weeks and a distinctive element in the course design was cooperation between the participants. The teachers in charge of the MOOC prepared the topics (see Table 2), a document with a maximum of 400 characters, 4-5 videos of between 3 and 5 minutes, and the activities that each participant subsequently had to share with their peers and teachers to receive feedback from them. Interaction between the participants was done through social networks. Purpose-specific social networks were offered within the framework of the MOOC on the Metauniversidad platform. An example was the NING channel, specifically created for the MOOC. However, participants were also at liberty to use other social networks with which they may be more familiar, such as Twitter, Facebook, Youtube or LinkedIn.

Table 2: Topics covered in the MOOC (classified by weeks)

Weeks	Topics
Week 1	Web 2.0 and education
Week 2	The mobile learning tsunami
Week 3	Open educational resources (OER)
Week 4	Digital content creation
Week 5	Personal learning environments
Week 6	The challenge of MOOCs

The study sample included the 392 people (264 women and 128 men) who registered for and completed the MOOC.

Results

We analysed the results from the scale we used (the adapted scale by Rebollo, García-Pérez, Buzón & Vega, 2014) and below we show the results following the same order of positive and negative emotions and the influence of the sex variable on how they were perceived.

As regards the emotion “pride”, there were statistically significant differences (0.001) between the men’s and women’s replies. We found that 87.87% of women gave an affirmative answer to the item “I am proud of how I have done in the MOOC”, with 45.45% indicating they felt “quite” proud and 42.42% “very” proud. This contrasts with 31.25% of men who felt “quite” proud and 43.75% who felt “very” proud. Differences in answers from male and female respondents were particularly evident in those persons who said they felt “somewhat” proud (25% of men and only 12.12% women) or “quite” proud (45.45% of women and 31.25% of men). In the case of those who felt very proud (i.e. the “very” answer), there was not a marked difference between men (43.75%) and women (42.42%). In general, most respondents (both women and men) answered this item affirmatively, but it is worth mentioning that women scored more frequently on “quite” and men on “somewhat”, noting that there were no major differences in the “very” answer.

As regards their perception in terms of their satisfaction with how they did the coursework (item “I am satisfied that I completed the coursework correctly and on time”), women scored more frequently on “not at all” (3.03%) and “very” (45.4%) than men (0% on “not at all” and 31.25% on “very”). On the other hand, more men than women chose the answers “somewhat” (18.75% men, 12.12% women) and “quite” (50% men, 39.39% women). These figures result in statistically significant differences (0.005) in connection with the answers about the degree of satisfaction. For example, in connection with the “satisfaction” emotion, women are polarised: they either feel “not at all” or “very” satisfied. Men, however, are more neutral: the majority said they were “somewhat” or “quite” satisfied.

This does not happen in the case of the “enthusiasm” emotion, where no statistically significant differences were detected. As regards the item “Doing this MOOC has encouraged me to learn more about the topics discussed”, which is directly linked to enthusiasm, we find that more women answered affirmatively: 72.7% gave a “quite” or “very” answer, compared

The Influence of the Sex Variable on How Participants in A MOOC Perceive Emotions

Urtza Garay Ruiz et al.

with 62.5% of men. This would suggest that men have felt less enthusiastic about the MOOC, as 37.5% felt “little” or “not at all” enthusiastic.

The trend we saw earlier in connection with satisfaction continues with the “confidence” emotion: not only are there statistically significant differences (0.002), but women appear to be more polarised than men. More men (18.75%) than women (9.09%) gave a “somewhat” answer, but more women answered “not at all” (6.06%, compared with 0% of men) and “very” (30.30%, compared with 25% of men). No major differences were detected in connection with the “quite” answer (chosen by 56.25% of men and 54.54% of women).

As regards relief, the last positive emotion (reflected in the item “I will feel relieved once the MOOC finishes”), the answers followed a similar pattern. Women chose more frequently the “not at all” answer (6.06% of women, compared with 0% of men) and the “very” answer (66.66% of women, compared with 31.25% of men), whereas more men chose the “somewhat” (31.25% of men, compared with 15.15% of women) and “quite” answers (37.5% of men, compared with 12.12% of women). This means that, aside from a repetition of statistically significant differences (0.000), we continue to see a polarisation in the female participants’ positive emotional experiences and attitudes to the learning process in the MOOC, whereas male participants had a more neutral experience in terms of the positive emotions.

The analysis of the emotions that we have identified as negative (insecurity, stress, worry, irritability and frustration) yielded results which confirm the statistically significant differences between men and women.

The first negative emotion we analysed was insecurity. This was gauged by means of the item “Doing the MOOC makes me feel insecure”. As we indicated earlier, significant differences (0.001) were detected based on the sex variable. Male participants showed less insecurity than women, but it must be pointed out that no participants chose the “very” answer for this item. A majority of men (62.5%) said that they felt “not at all” insecure about the MOOC, compared with 45.45% of women. Furthermore, 36.36% of women and 31.25% of men said they felt “somewhat” insecure, whereas 6.25% of men and 18.18% of women said they felt “very” insecure. In general, it seems that the majority of the participants (whether women or men) did not feel insecure about the MOOC.

This trend in the answers given by both male and female participants continues in the stress item, where men chose “not at all” more frequently than women, whereas women chose “somewhat” and “quite” more often than men. There are, therefore, statistically significant differences (0.000) in the results from the point of view of the answers given by men and women. We found that 43.75% of men (as opposed to 18.18% of women) chose the answer “not at all”, 12.12% of women (as opposed to 6.25% of men) chose “very”, and 39.39% of women (as opposed to 18.75% of men) chose “somewhat”. Amongst those who felt “quite” stressed, there are similar percentages of men (31.25%) and women (30.30%). This would suggest that men in general did not feel stressed by the MOOC, whereas women did feel “somewhat” or “quite” stressed.

There were also significant differences (0.000) in the answers regarding the “worry” emotion (item “I have felt worried while doing the coursework and other activities in connection with the MOOC”): more women expressed they felt “very” worried whilst doing the MOOC coursework, whereas most men indicated they felt only “somewhat” worried. More specifically, 62.5% of men felt “somewhat” worried, 6.25% “not at all” worried and 31.25% “quite” worried. As regards women however, 48.485% felt “somewhat” worried, with 33.335% feeling “quite” worried and 6.06% “not at all” worried. The biggest difference is in respondents who said they felt “very” worried: 12.12% of the women and 0% of the men.

On the irritability items, the polarisation trend that we have seen in the answers from female respondents continues. Once again, statistically significant differences (80.013) exist between men and women, as more men said the MOOC made them feel “somewhat” (62.5%) or “quite” (15.15%) irritable. Women, however, leaned more towards the “not at all” (30.30%) and “very” (3.30%) answers. The majority of participants in general (62.5% of men and 51.51% of women) indicated that the MOOC made them feel “somewhat” irritable. We must also highlight that 3.30% of women felt “very” irritable by the MOOC, but no men felt irritability to that degree.

Women were also polarised in their answers about the last emotion: frustration (item “I have felt frustrated doing the MOOC”). Most women opted for the more extreme answers, as opposed to men’s more moderate choices. In connection with the feelings of frustration elicited by the MOOC, two aspects stand out.

Firstly, the participants in general (whether men or women) did not feel frustrated by the MOOC. We find evidence of this in the fact that 85.85% of women and 72.25% of men expressed they were “not at all” or “somewhat” frustrated, as opposed to 12.125% of women and 18.75% of men who said they felt “quite” or “very” frustrated.

Secondly, it is evident that, notwithstanding the above, a higher percentage of men (18.75%) than women (12.12%) felt “somewhat” frustrated by the MOOC, but only women felt “very” frustrated (3.03% of women and 0% of men chose the “very” answer).

Conclusion

A MOOC based on cooperation requires direct and continued involvement from the participants. This, in turn, implies an emotionally active experience, which, judging from the results in this study, can be described as more positive than negative. In general, the participants perceived a positive emotional development throughout the learning process in the MOOC. The emotions defined as positive (pride, satisfaction, enthusiasm, confidence and relief) have been assessed as positive or very positive by all participants (both women and men). On the other hand, the emotions defined as negative (insecurity, stress, worry, irritability and frustration) have been assessed by the participants as negative. So the first conclusion that may be drawn from this is that doing a cooperation-based MOOC appears to be an emotionally positive experience for the participants.

The way participants gauge their emotions, however, changes depending on whether the participant is a man or a woman. It is worth mentioning that, in all cases, there are results with significant differences between men's and women's answers, except in the "enthusiasm" item, where men and women score similarly on all the answer options. Based on this, our second conclusion would be that, despite the emotionally positive experience, there are different degrees of positive or negative emotions amongst both men and women. We have been able to establish that women's emotional experience, whether positive or negative, is much more polarised than that of men, which we would describe as "neutral" or "moderate". This polarisation is particularly evident in some of the positive emotions (satisfaction, confidence and relief), which also reveal significant differences with men's perceptions. That distinctive polarisation amongst female participants can also be found in two of the emotions defined as negative: irritability and frustration. We can therefore conclude that the sex variable appears to have a significant influence on the emotions elicited by the learning process of a MOOC. Bearing that in mind, it may be interesting to conduct further research in order to analyse what causes those differences. This aspect, as well as others such as learning outcomes and the different types of course design for a MOOC, appears to be a promising area for future educational research.

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