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CORRECTION

Correction to: Who's watching? Classifying sports viewers on social live streaming services

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1 The errors in section Abstract

The sentence "52,545 sports SLSSs viewers' viewing duration time is predicted by a feed-forward neural network." should be amended to "52,754 sports SLSSs viewers' viewing duration time is predicted by a feedforward neural network."

2 The errors in Sect. 4.2.2 Predicting viewing duration time

1). The second paragraph of 4.2.2 should be amended to "The descriptive statistics of the viewer behavioural data are detailed in Table 2. Among the 52,754 viewers, there are 51,086 viewers with no record of gifting and real-time messaging, which accounts for 96% of the total sample. This proportion is in line with the "80/20 principle", whereby 80% of content in an online community is created by 20% of the users (Van et al., 2016). There are also 33,210 users with only one recorded data of entrance and without any record of gifting and real-time messaging. These viewers' behavioural data are lacking t_1 and t_2, which cannot be used to predict their viewing duration through their behaviours directly. Therefore, the average number of real-time messages and virtual gifts of all viewers in a certain period is used to represent the overall behaviour of the viewers in this period".

2). The sentence "According to the results of the descriptive data analysis in the previous stage, 2,038 viewers' data meet the following requirements:" should be amended to "According to the results of the descriptive data analysis in the previous stage, 2,038 sets of viewers' data meet the following requirements:"

3). The sentence "Based on the existing algorithm model and the calculated data of 2038 viewers, the feedforward neural network (FFNN) is trained to calculate the viewing dura-

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tion time of the rest of the viewers and set up time labels." should be amended to "Based on the existing algorithm model and the calculated 2038 sets of viewers' data, the feedforward neural network (FFNN) is trained to calculate the viewing duration time of the rest of the viewers and set up time labels."

4). The Eq. (5) should be amended to.

$$t_f = argmin_{t\in(t_1,t_2)} p(t) .$$

5). The sentence "Then, the designed algorithm, $t_F - t_0$, was used to calculate the viewing duration time of the of the remaining 50,507 viewers." should be amended to "Then, the designed algorithm, $t_F - t_0$, was used to calculate the viewing duration time of the of the remaining 51, 920 viewers."

3 The errors in Sect. 4.3 Clustering analysis

1). The "Table 3 Cluster analysis results" should be amended as follows:

Cluster	Cluster Label	Cluster Size (N)	Cluster Size (%)	Viewing duration (Min.)	Real-time messaging (VN)	Gifting (VN)	Gifting amount (¥)
				Mean			Mean
1	Content consumer	27,513	52.20%	41.85	0	0	0
2	Super co-creator	769	1.50%	37.26	107	769	59
3	Co-creator	899	1.70%	35.21	899	0	0
4	Tourist	23,573	44.70%	10.52	0	0	0

Note: VN = Number of viewers.

2). The second and the third paragraph of the section should be amended as per the new table above. The correct texts are given below:

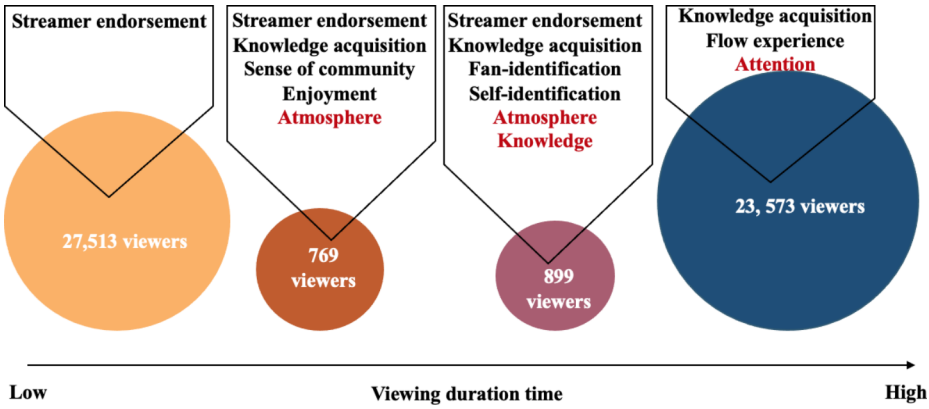
The results of BIC indicate there are four clusters, and the value of BIC is between 0.5 and 1, which shows a high quality of the classification (see Fig. 6 below). The four distinct types of SLSSs viewers contained 27,513 consumers, 769 super co-creators, 899 co-creators and 23,573 tourists, corresponding to 52%, 1.5%, 1.7% and 44.7% of the total viewers, respectively.

Table 3 below show the descriptive statistics for each cluster. Cluster 1 is the largest group of viewers in the sample, consisting of about 52% of all users. These viewers have the longest average viewing time, which is 41.85 minutes. However, they do not send real-time massages and gifts. Therefore, they are labelled "content consumers". The second cluster of viewers is much smaller than the first group. This group consists of only 769 viewers, accounting for 1.5% of the total viewers. Although this group of viewers has a shorter average viewing duration time (37.26 minites) compared to cluster 1, they are actively engaging in sending messages (107 viewers) and gifts (769 viewers). Accordingly, compared with cluster 1, this group of viewers not only consumes the content, but also contributes to other actors in the live streaming room by sending real-time messages and gifts. Therefore, we label this group of viewers "super co-creators". The third cluster contains 899 viewers, making up 1.7% of the total viewership, which is just slightly higher than that of the cluster 2. Viewers in this cluster have a slightly shorter average viewing time (35.21 minites) than

the second group. Despite being the biggest group that sends real-time messages, they were not sending virtual gifts when watching the sports games on sports SLSSs. Therefore, we named those in this group "co-creators" who contribute to the community by only sending real-time messages. The last cluster of viewers is labelled the "tourist cluster" as these viewers only spend an average of 10.52 minutes on viewing the live streaming sports event with no other engagement behaviour. These viewers are like tourists who visit different live streaming platforms but do not stay for long time. It is worth noting that this cluster makes up about 44.7% of all users of sports SLSSs.

4 The errors in Sect. 5.1 Interview data acquisition

The Fig. 7 needs to be changed as follows:



5 The errors in Sect. 6.1 Implications for research

The sentence "we estimate an FFNN model using a dataset of 52,545 viewers' real behaviours from a popular live streaming platform in China to estimate their viewing duration time in this novel business context." should be amended to "we estimate an FFNN model using a dataset of 52,754 viewers' real behaviours from a popular live streaming platform in China to estimate their viewing duration time in this novel business context."