$ head -1 message.csv > message\_selected.csv

$ cat message.csv | grep -e 'GA52[2356]' >> message\_selected.csv

> messages <- read.table("message\_selected.csv", header = TRUE, sep=",")

> summary(messages)

day hour gametime zone

Min. :14814 Min. :10.59 Min. :-4.513 The Town Centre:683

1st Qu.:14814 1st Qu.:12.32 1st Qu.: 9.818 Plumstead :247

Median :14814 Median :13.66 Median :21.684 The Arsenal :220

Mean :14814 Mean :13.41 Mean :24.893 The Barracks :178

3rd Qu.:14814 3rd Qu.:14.41 3rd Qu.:39.386 Woolwich Common:164

Max. :14814 Max. :16.10 Max. :57.027 The Marshes :140

(Other) :184

lon lat age r

Min. :0.00000 Min. : 0.00 Min. : 0.000 Min. : 3.0

1st Qu.:0.06692 1st Qu.:51.49 1st Qu.: 0.000 1st Qu.: 52.0

Median :0.06797 Median :51.49 Median : 0.000 Median :146.0

Mean :0.06544 Mean :49.51 Mean : 5.343 Mean :193.2

3rd Qu.:0.06913 3rd Qu.:51.49 3rd Qu.: 0.000 3rd Qu.:282.0

Max. :0.07486 Max. :51.50 Max. :302.000 Max. :796.0

NA's : 70.0

dist event playerId gameId messageId

Min. :0 message:1816 P569 : 107 GA522:204 MSG42707: 3

1st Qu.:0 P577 : 105 GA523:688 MSG42575: 2

Median :0 P581 : 105 GA525:584 MSG42576: 2

Mean :0 P573 : 100 GA526:340 MSG42740: 2

3rd Qu.:0 P574 : 91 MSG42794: 2

Max. :0 P589 : 91 MSG43013: 2

(Other):1217 (Other) :1803

type year

timeline\_content\_global:1816 Min. :1900

1st Qu.:1918

Median :1942

Mean :1949

3rd Qu.:1978

Max. :2011

title

Lipman dies : 22

The electric tram comes to Woolwich : 22

The Thames barrier construction creating jobs: 22

Welcome to Woolwich : 22

Jobs become very scarce in Woolwich : 21

The Ferries are replaced by diesel boats : 21

(Other) :1686

description

null : 45

Across Woolwich jobs are created by the new construction on the Thames Barrier providing and opportunities for young people in your communities. They gain 2 health, wealth and knowledge points. : 22

Electric trams are being built across Woolwich, replacing the horse drawn vansl. For communities that live outside the town centre it becomes easier to travel to the Market, to work at the Arsenal and to cross the river. All the members of your community increase their health and wealth by 1 point.: 22

Maxs family are devasted by the news that the elder brother Lipman dies. Many of Lipmans and Maxs children remain in Woolwich but the elder generation has now gone. Your community loses 1 health point and gains 2 participation points : 22

You have arrived in the town of Woolwich, on the outskirts of London, England. It has been a long journey and you are far from home. You need to find a place to stay and settle in this new place. : 22

Across Woolwich jobs are becoming increasingly scarce, small groups of men wearing war medals sing for money in the town square next to a piano on a hand cart, to earn money for their families. Your community members lose 2 wealth points and 1 knowledge point. : 21

(Other) :1662

preMins postMins view viewMins

Min. : 0.07682 Min. : 0.07682 N:1492 Min. :1.167e-03

1st Qu.: 0.26410 1st Qu.: 0.26410 Y: 324 1st Qu.:1.081e-01

Median : 0.44955 Median : 0.44955 Median :2.285e-01

Mean : 0.72784 Mean : 0.72784 Mean :4.266e-01

3rd Qu.: 0.67396 3rd Qu.: 0.67396 3rd Qu.:4.750e-01

Max. :58.62192 Max. :58.62192 Max. :1.115e+01

NA's :40.00000 NA's :40.00000 NA's :1.492e+03

action actionMins

CommunitiesButton : 305 Min. : 0.0005

CreateMemberButton: 255 1st Qu.: 0.0866

createMember.start: 75 Median : 0.1809

placeMember.start : 73 Mean : 0.3031

CreateStoryButton : 23 3rd Qu.: 0.3601

(Other) : 28 Max. : 3.4157

NA's :1057 NA's :1057.0000

> hist(messages$preMins,breaks=seq(0,60,by=1))



> hist(messages$preMins[messages$preMins<10],breaks=seq(0,10,by=0.1))

>



> qminutes<-ordered(floor(messages$preMins\*4))

> summay(qminutes)

Error: could not find function "summay"

> summary(qminutes)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

361 651 371 110 55 24 30 44 39 19 20 5 5 4 4 7

16 17 18 19 20 21 23 24 36 58 234 NA's

8 4 1 1 3 3 3 1 1 1 1 40

> mtotal<-tapply(messages$view,qminutes,length)

> mtotal

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

361 651 371 110 55 24 30 44 39 19 20 5 5 4 4 7 8 4 1 1

20 21 23 24 36 58 234

3 3 3 1 1 1 1

> mview<-tapply(messages$view[messages$view=='Y'],qminutes[messages$view=='Y'],length)

> mview

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

73 94 74 29 6 8 4 7 9 3 3 1 1 NA 3 1 1 2 NA NA

20 21 23 24 36 58 234

1 NA NA NA NA NA NA

> mview/mtotal

0 1 2 3 4 5 6 7

0.2022161 0.1443932 0.1994609 0.2636364 0.1090909 0.3333333 0.1333333 0.1590909

8 9 10 11 12 13 14 15

0.2307692 0.1578947 0.1500000 0.2000000 0.2000000 NA 0.7500000 0.1428571

16 17 18 19 20 21 23 24

0.1250000 0.5000000 NA NA 0.3333333 NA NA NA

36 58 234

NA NA NA

> plot(mview/mtotal)



**No obvious effect of time since last message :-/**

> qminutes2<-ordered(floor(messages$postMins\*4))

> summary(qminutes2)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

361 651 371 110 55 24 30 44 39 19 20 5 5 4 4 7

16 17 18 19 20 21 23 24 36 58 234 NA's

8 4 1 1 3 3 3 1 1 1 1 40

> mtotal2<-tapply(messages$view,qminutes2,length)

> mtotal2

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

361 651 371 110 55 24 30 44 39 19 20 5 5 4 4 7 8 4 1 1

20 21 23 24 36 58 234

3 3 3 1 1 1 1

> mview2<-tapply(messages$view[messages$view=='Y'],qminutes2[messages$view=='Y'],length)

> mview2

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

24 91 71 25 16 8 11 15 12 8 8 2 1 2 2 4 5 3 NA 1

20 21 23 24 36 58 234

2 1 1 1 NA 1 NA

> mview2/mtotal2

0 1 2 3 4 5 6 7

0.0664820 0.1397849 0.1913747 0.2272727 0.2909091 0.3333333 0.3666667 0.3409091

8 9 10 11 12 13 14 15

0.3076923 0.4210526 0.4000000 0.4000000 0.2000000 0.5000000 0.5000000 0.5714286

16 17 18 19 20 21 23 24

0.6250000 0.7500000 NA 1.0000000 0.6666667 0.3333333 0.3333333 1.0000000

36 58 234

NA 1.0000000 NA

> summary(mview2/mtotal2)

Min. 1st Qu. Median Mean 3rd Qu. Max. NA's

0.06648 0.30350 0.38330 0.45690 0.58480 1.00000 3.00000

> plot(mview2/mtotal2)



**Strong effect of time (quarter-minutes) that message is available to view on probability of viewing it.**

> lmview2 <-lm (mview2/mtotal2 ~ as.integer(levels(qminutes2)))

> summary(lmview2)

Call:

lm(formula = mview2/mtotal2 ~ as.integer(levels(qminutes2)))

Residuals:

Min 1Q Median 3Q Max

-0.28654 -0.08617 -0.00695 0.05679 0.44699

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 0.235388 0.056034 4.201 0.000369 \*\*\*

as.integer(levels(qminutes2)) 0.016717 0.003179 5.258 2.82e-05 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.181 on 22 degrees of freedom

(3 observations deleted due to missingness)

Multiple R-squared: 0.5569, Adjusted R-squared: 0.5368

F-statistic: 27.65 on 1 and 22 DF, p-value: 2.825e-05

**====**

gametime <- ordered(floor(messages$gametime/5))

gtview<-tapply(messages$view[messages$view=="Y"],gametime[messages$view=="Y"],length)/tapply(messages$view,gametime,length)



**Hard to know on time within game; variation could easily be due to the previous effect. In fact, without adjusting for that I’m not sure what else we could find…**

view<- mapply(function(x) if(x=="Y") 1 else 0, messages$view)

summary(view)

Min. 1st Qu. Median Mean 3rd Qu. Max.

1. 0.0000 0.0000 0.1784 0.0000 1.0000

pview<-tapply(view,factor(messages$playerId),mean)

P568 P569 P570 P571 P572 P573 P574

0.36363636 0.27102804 0.34782609 0.08108108 0.38461538 0.11000000 0.10989011

P575 P576 P577 P578 P579 P580 P581

0.41095890 0.15294118 0.00000000 0.01162791 0.36363636 0.32394366 0.08571429

P582 P583 P584 P585 P586 P587 P588

0.11666667 0.14772727 0.03703704 0.11363636 0.40740741 0.03703704 0.16000000

P589 P590 P591 P592

0.32967033 0.16393443 0.28125000 0.18518519

pnum<-tapply(view,factor(messages$playerId),length)

P568 P569 P570 P571 P572 P573 P574 P575 P576 P577 P578 P579 P580 P581 P582 P583

11 107 23 37 26 100 91 73 85 105 86 77 71 105 60 88

P584 P585 P586 P587 P588 P589 P590 P591 P592

81 88 81 81 75 91 61 32 81

plot(pview,pnum)

> plot(pnum,pview)

> summary(lm(pview ~ pnum))

Call:

lm(formula = pview ~ pnum)

Residuals:

Min 1Q Median 3Q Max

-0.19825 -0.06188 -0.01936 0.08075 0.22619

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 0.3618370 0.0720002 5.025 4.38e-05 \*\*\*

pnum -0.0022299 0.0009315 -2.394 0.0252 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1231 on 23 degrees of freedom

Multiple R-squared: 0.1995, Adjusted R-squared: 0.1647

F-statistic: 5.731 on 1 and 23 DF, p-value: 0.02521



**Weak effect by player of number of messages vs viewing.**