Speed Dating Experiment – Data Analysis using SPSS and Excel

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Introduction

Many couples remember their very first sight – look, clothing, smile, perfume, place, day, time and more. But what are the most influential factors for love at first sight in the first four minutes of couples? We can try to answer this question using the Speed Dating Dataset, that was conducted by Columbia Business School professors Ray Fishman and Sheena Iyengar for their paper Gender Differences in Mate Selection: Evidence from a Speed Dating Experiment. The data collected from Kaggle Website.

Data was gathered from participants in experimental speed dating events from 2002-2004. During the events, the attendees would have a four minute "first date" with every other participant of the opposite sex. At the end of their four minutes, participants were asked if they would like to see their date again. They were also asked to rate their date on six attributes: Attractiveness, Sincerity, Intelligence, Fun, Ambition, and Shared interests.

The dataset also includes questionnaire data gathered from participants at different points in the process. These fields include: demographics, dating habits, self-perception across key attributes, beliefs on what others find valuable in a mate, and lifestyle information. The experiment was conducted in 4 steps:

1. Signup (Time 1) – answering questionnaire.
2. The day of the experiment.
3. Follow-up (Time 2) one day after the experiment - answering questionnaire.
4. Follow-up (Time 3) 3-4 weeks after the experiment - answering questionnaire.

Data structure

The data has 8379 rows with a unique 552 subjects and 193 columns. There is a total of 21 waves in the data – each wave is a session that the researches conduct with max of 40 subjects – 20 males and 20 females. The columns can be divided into 8 sections: Experiment Details (Columns 1- 16), partner's stated preference at Time 1 (Columns 17-22), Rating by partner the night of the event (Columns 23-32), signup/Time 1 (Columns 33-95), Scorecard of the subjects (Columns 96-105), Half way through

meeting all protentional dates - two questions (Columns 106-117), Follow-up/ Time 2 (Columns 118-154), Follow-up / Time 3 (Columns 155-193). See the Speed Dating Data Key file for more details.

Data changes

In the data key document the researches stated in each time (1,2,3) that the subjects of waves 6-9 need to rate their point on each of the six attributes (Attractive, Sincere, Intelligent, Fun, Ambitious and Shared interests) with a scale of importance between 1 and 10, while the other waves (1-5, 10-21) were asked to rate their points to all the attributes in a total of 100 and give more points to that are more important and fewer points to those are less important. the subjects were asked to rate their points on these questions:

1. what you look for in the opposite sex?
2. what you think MOST of your fellow men/women look for in the opposite sex?
3. What do you think the opposite sex looks for in a date?

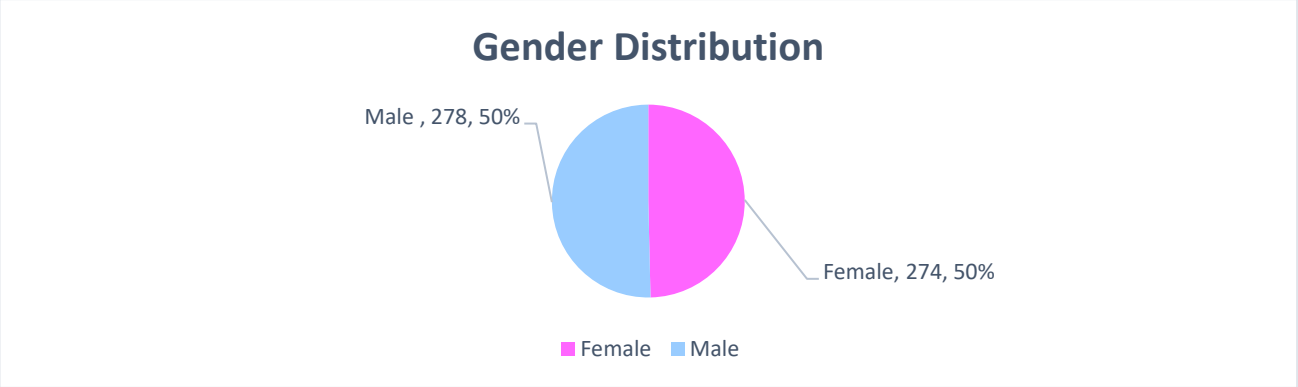
Eventually the points that were given were those with a total of 100 points to all the subjects in all the waves.

Research Questions

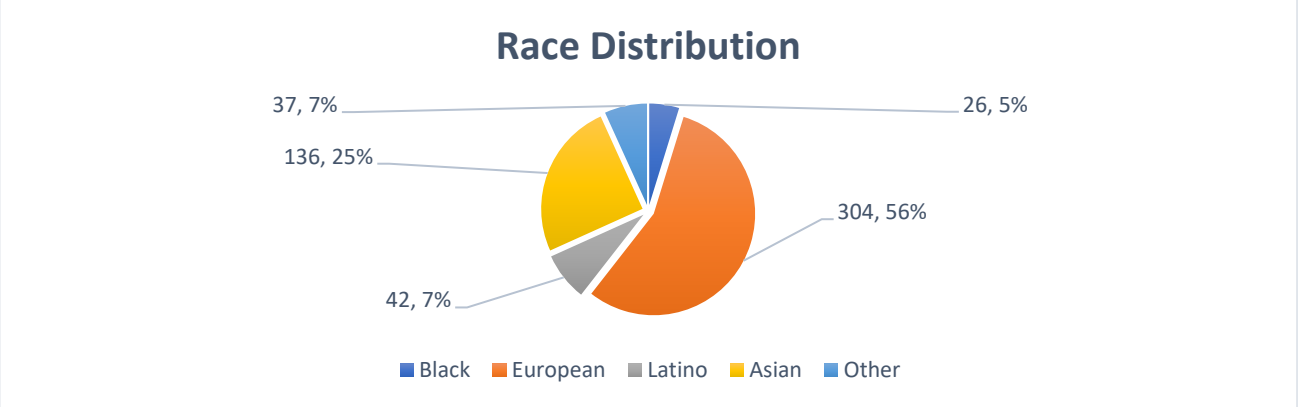
1. What was the general preference of the subjects in all of the six attributes?
2. What is the main difference between male and female preferences?
3. What males or females think about the opposite sex preference in a date?
4. What male or female prefer VS what the opposite sex think they prefer?
5. What is the main difference between a positive and a negative decision of the subjects when they select a partner?
6. What are the best factors that contribute a positive selection?
7. What is the main difference between a match couple and a nonmatch couple within the six attributes?
8. What is the difference between gender, age groups and race by the Attractiveness and Fun attributes on positive decision?
9. what was the positive decision percentage of one race on the other races?

Data Description

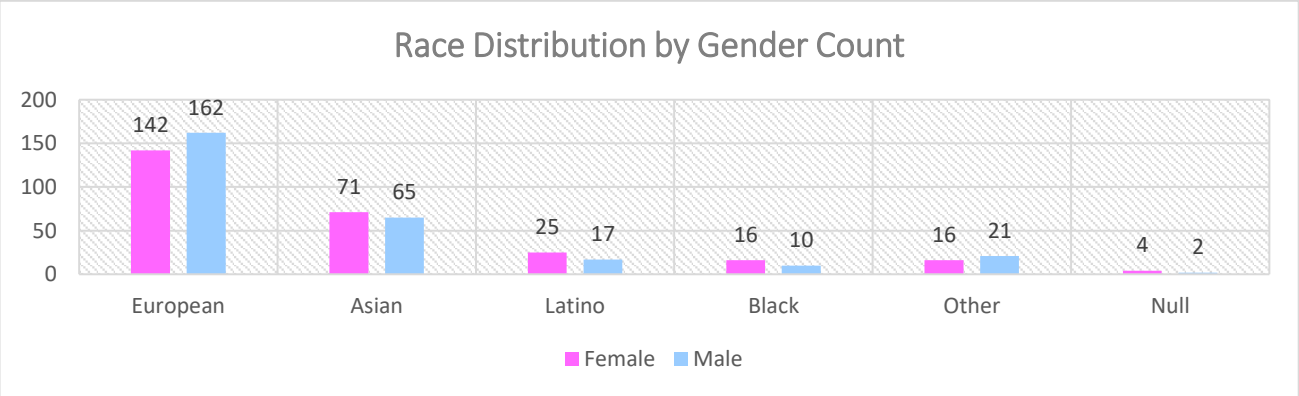
In the experiment there were a total of 552 subjects. Our of them 278 (50.3%) were male and 274 (49.6%) Female. The mean Age of the subjects was (M=26.36) and the standard deviation was (SD=3.567). the youngest age was 18 and the oldest was 55.



From the total subjects, 304 where European (55.7%), 136 Asian (24.95%), 42 Latino (7.7%), 37 Other (6.8%), 26 Black (4.7%) 6 with null values and 1 missing value.

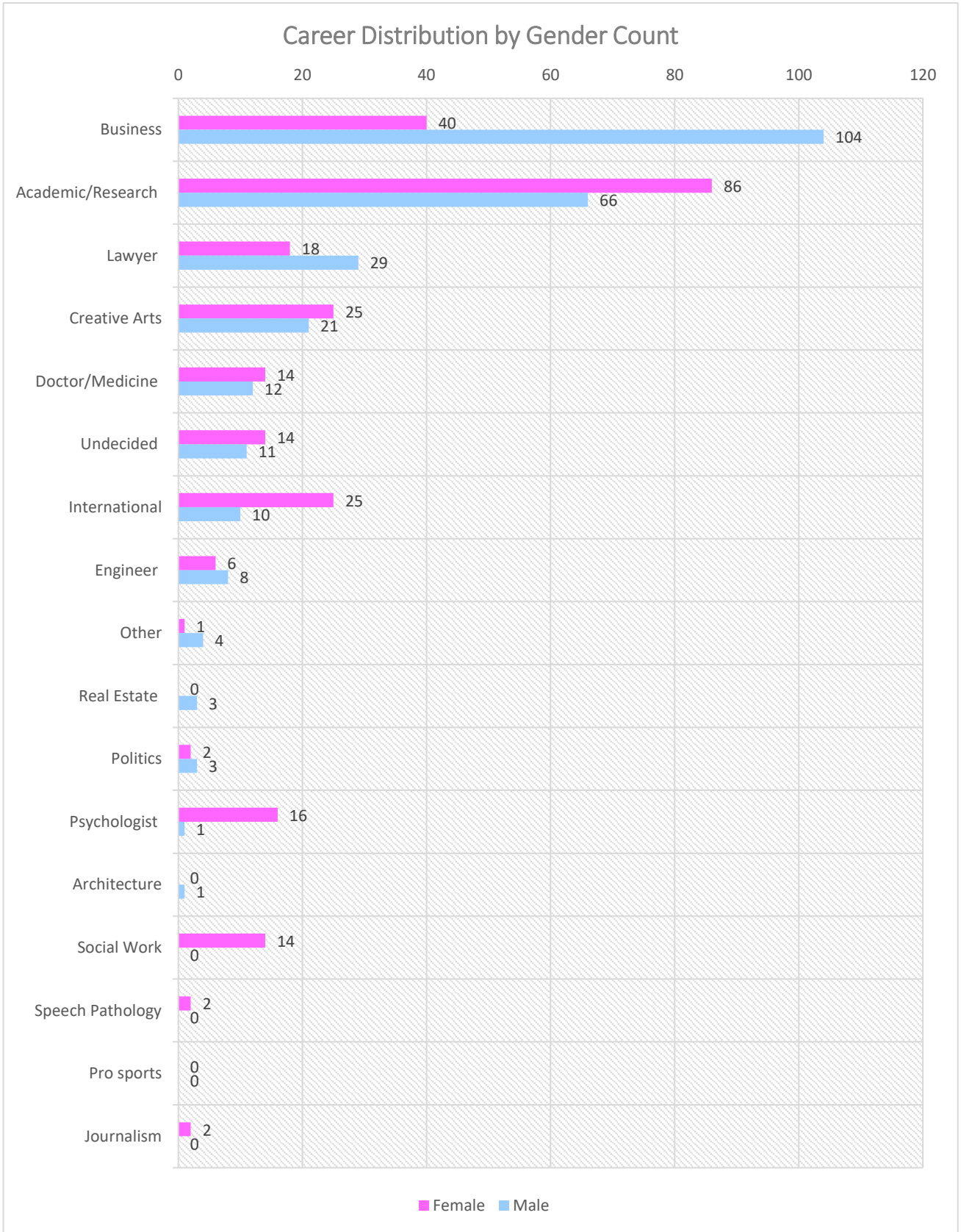


The chart below shows race distribution by Gender count. There was also 4 female and 2 males with Null values and 1 missing value.



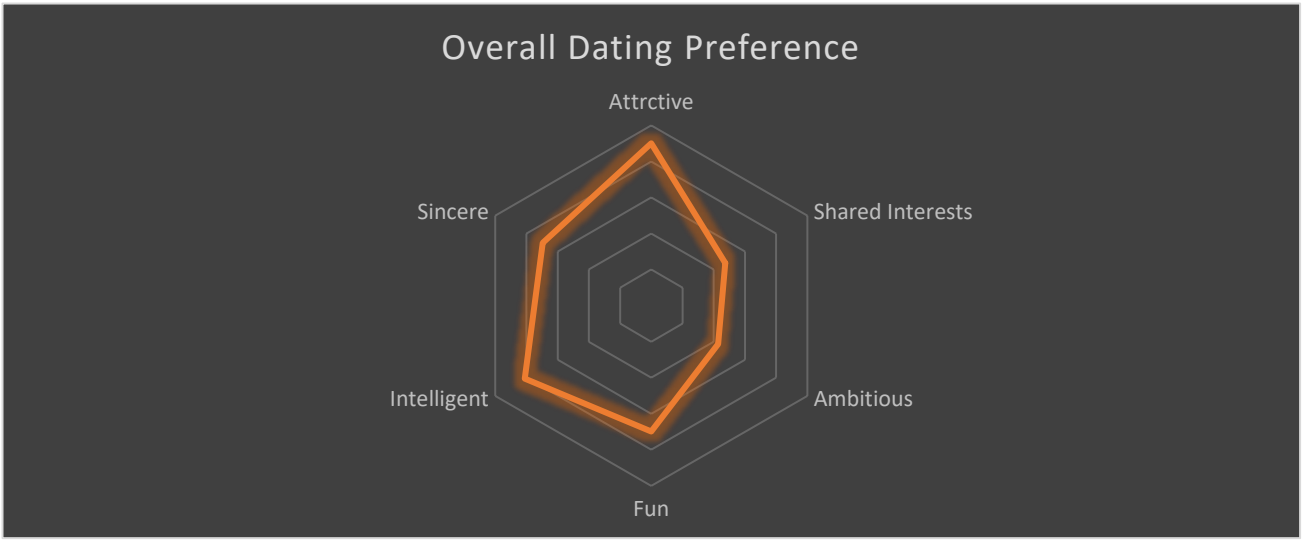
From a career perspective most of the participants select Business, Academic and Law careers – in Business and Law there is a male dominant and in the Academic one there is a Female dominant.

Questions and Answers



1. What was the general preference of the subjects in all of the six attributes?

All the subjects were asked to rank their preferences mate selection among the six attributes in a total of 100 points and give more points to that are more important and fewer points to those are less important. To answer this question, it was conducted a mean score for all of the attributes by male and female preference in time one. The most important variables in mate selection is Attractive (M=22.51, SD=12.51) and Intelligent (M=20.26, SD=6.78) while the least is Ambitious (M=10.68, SD=6.12) and Shared interests (M=11.84, SD=6.36). In the middle there is Fun (M=17.45, SD=6.08) and Sincere (M=17.39, SD=7.04). The web chart shows the relations between all of the six attributes.



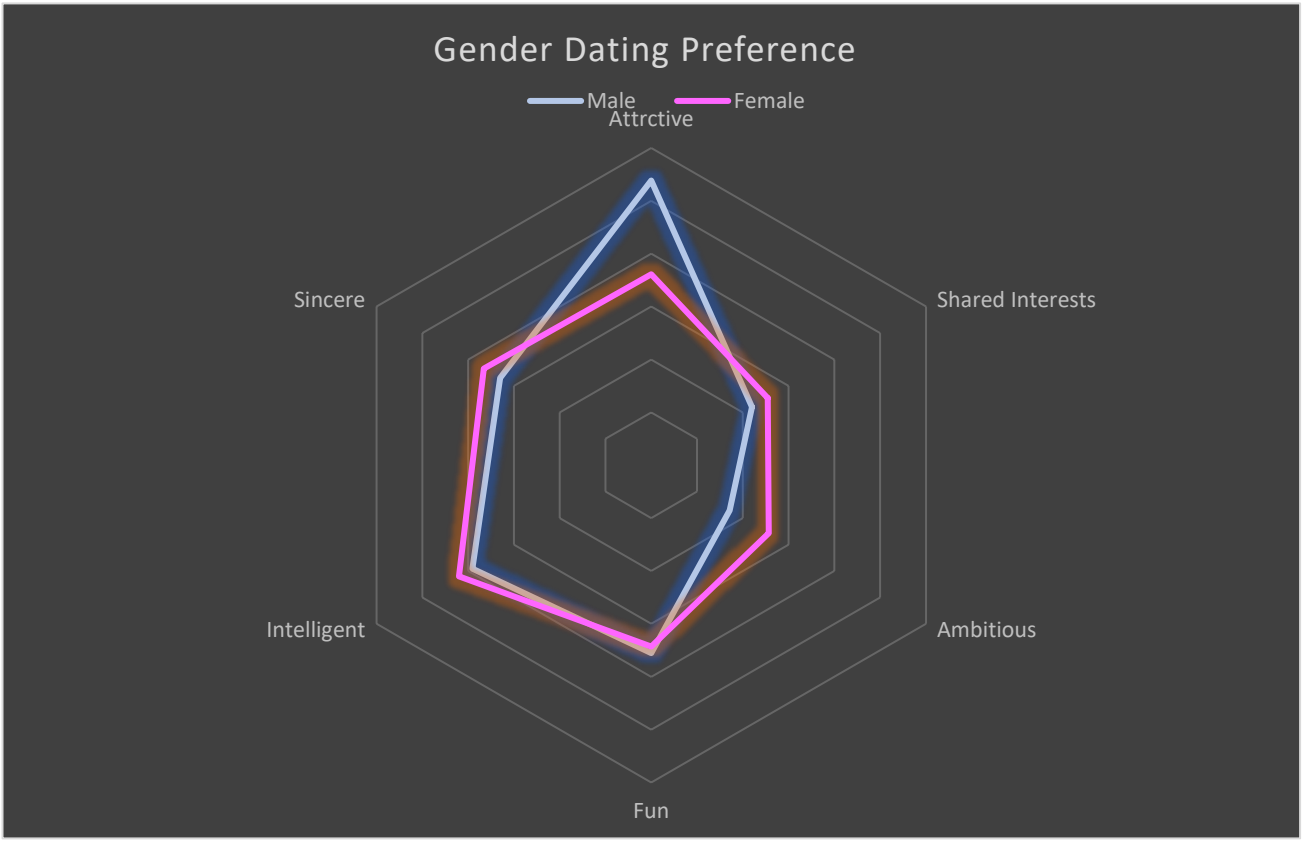
2. What is the main difference between male and female preferences?

The general preference from the previous question was divide into males and females mean score. A t tests between male and female mean score of all of the six attributes was conducted. It was found that there is a statistically significant difference between the group. Here are the results from the most statistically significant to the least one.

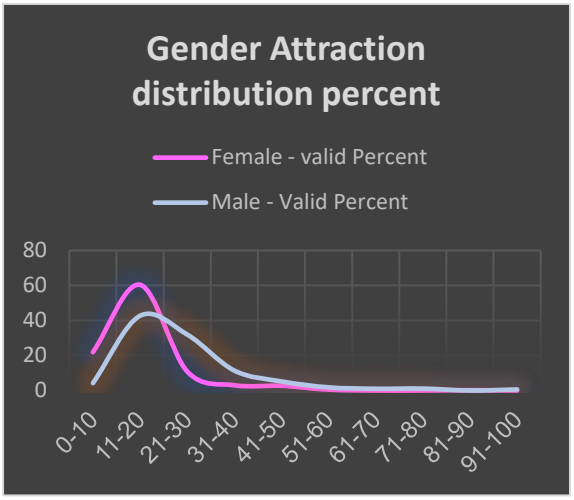
Variable Name	**Group Name**	**Mean value**	**SD value**	**t test value**	**p value**
Attractive	Male	26.92	13.66	t (8297) = 34.27	p < .000
	Female	18.05	9.49		
Ambitious	Male	8.55	5.98	t (8277) = -33.87	p < .000
	Female	12.82	5.48		
Shared interests	Male	10.99	6.77	t (8255) = -12.31	p < .000
	Female	12.70	5.79		

Sincere	Male	16.49	7.21	t (8297) = -11.78	p < .000
	Female	18.30	6.75		
Intelligent	Male	19.53	6.70	t (8297) = -9.89	p < .000
	Female	21.00	6.77		
Fun	Male	17.76	6.57	t (8287) = 4.62	p < .000
	Female	17.14	5.53		

While males tend to put most of their weight on Attractiveness (M=26.92, SD=13.66) and then divide all the other attributes quite evenly, females tend to divide all the attributes evenly and within them put the heaviest weight on Intelligent (M=21, SD=6.77).



To explorer more about the difference between male and female mate preference I took all the values between 0 and 100 and put them in a scale of 10 groups, each group has 10 points. Then, I measure the percentage of frequency in each of the 10 groups for males and females and compare them with each other. This measure gives us the frequency distribution percent of mate preference in males and females. The charts are ordered from the most statistically significant to the least one.


Gender Attraction distribution percent
Female - valid Percent
Male - Valid Percent
80
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61-70
71-80
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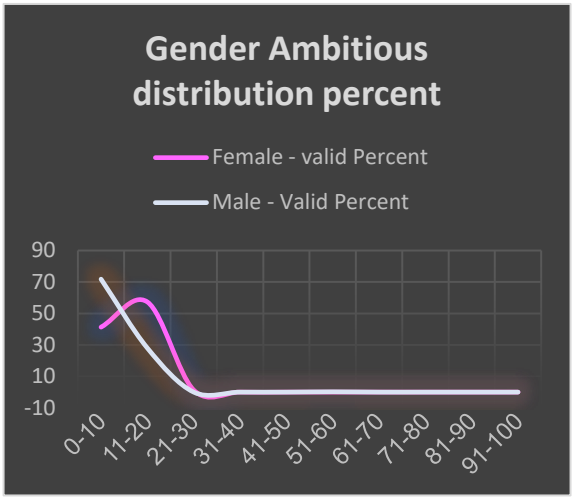
91-100


Gender Ambitious distribution percent
Female - valid Percent
Male - Valid Percent
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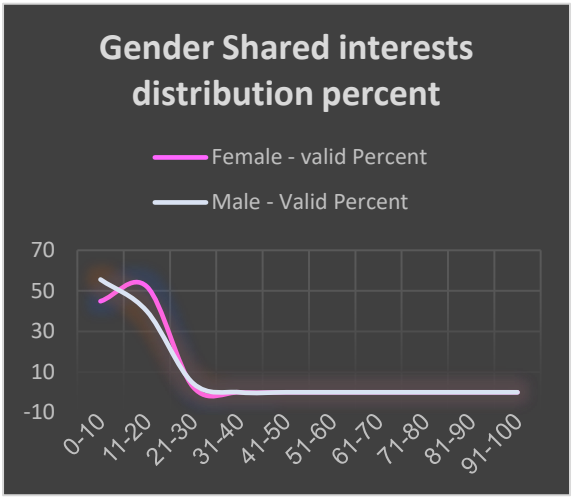
Gender Shared interests distribution percent
Female - valid Percent
Male - Valid Percent
70
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61-70
71-80
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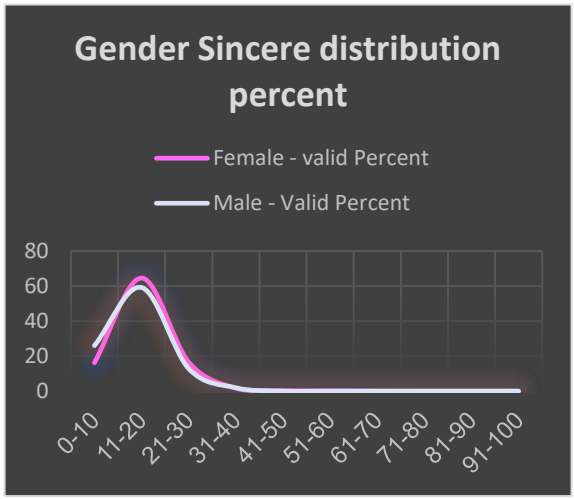
91-100


Gender Sincere distribution percent
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Male - Valid Percent
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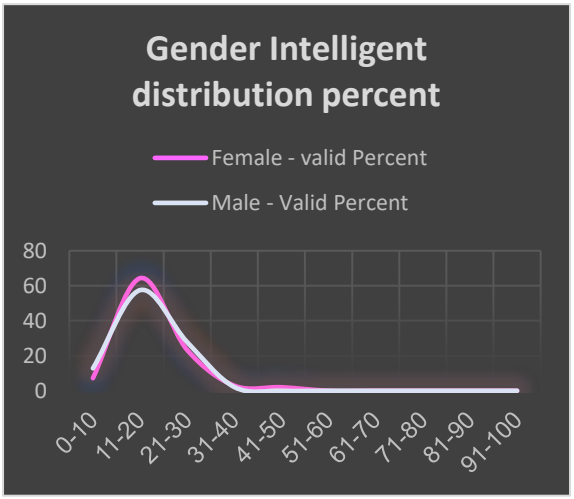
Gender Intelligent distribution percent
Female - valid Percent
Male - Valid Percent
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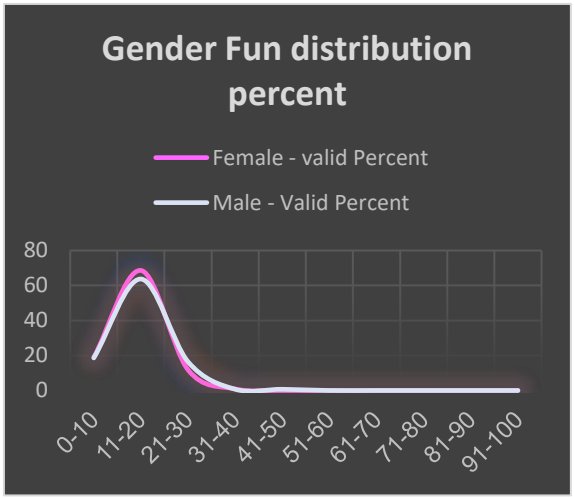
Gender Fun distribution percent
Female - valid Percent
Male - Valid Percent
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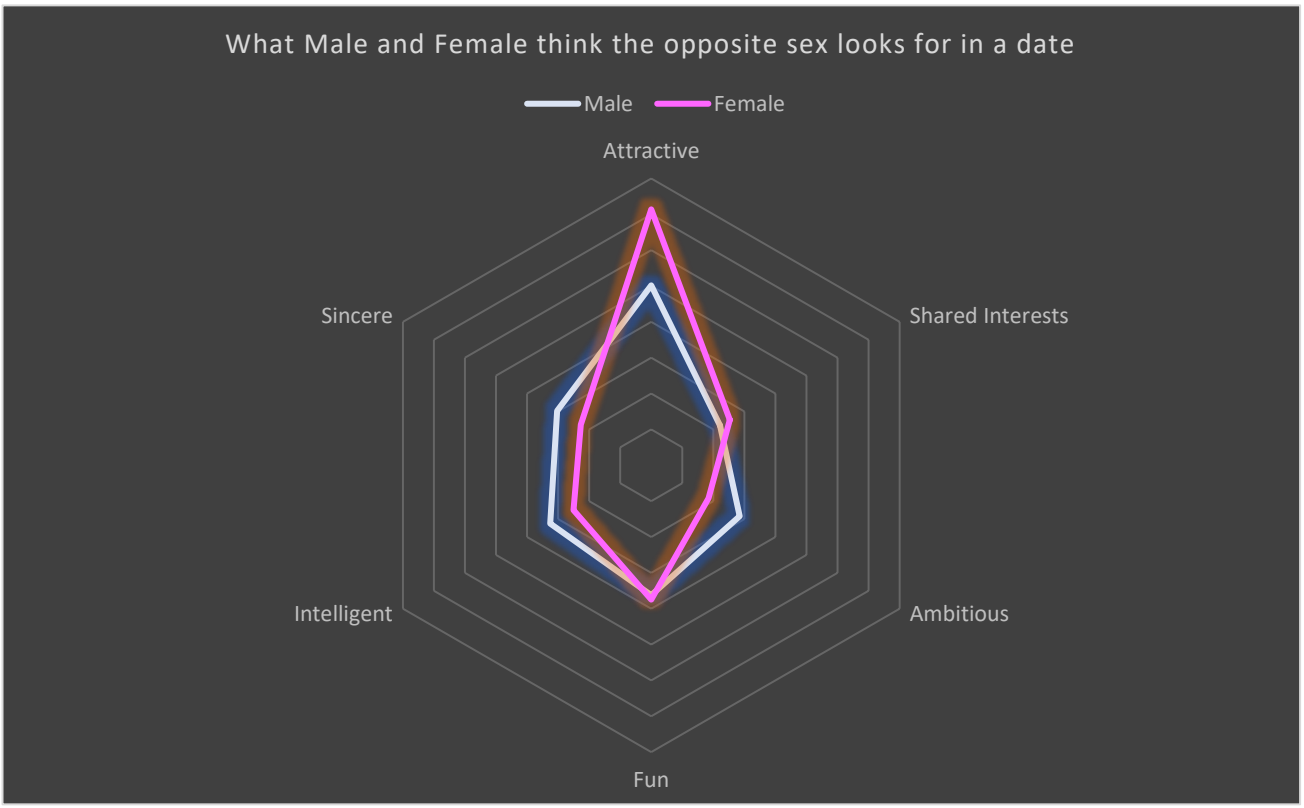
51-60
61-70
71-80
81-90
91-100

3. What males or females think about the opposite sex preference in a date?

Males and females were asked what they think the opposite sex looks for in a date and rank the six attributes like they did in the previous question. To understand it was calculated a mean score and SD score for each one of the six attributes. The results are in the table below.

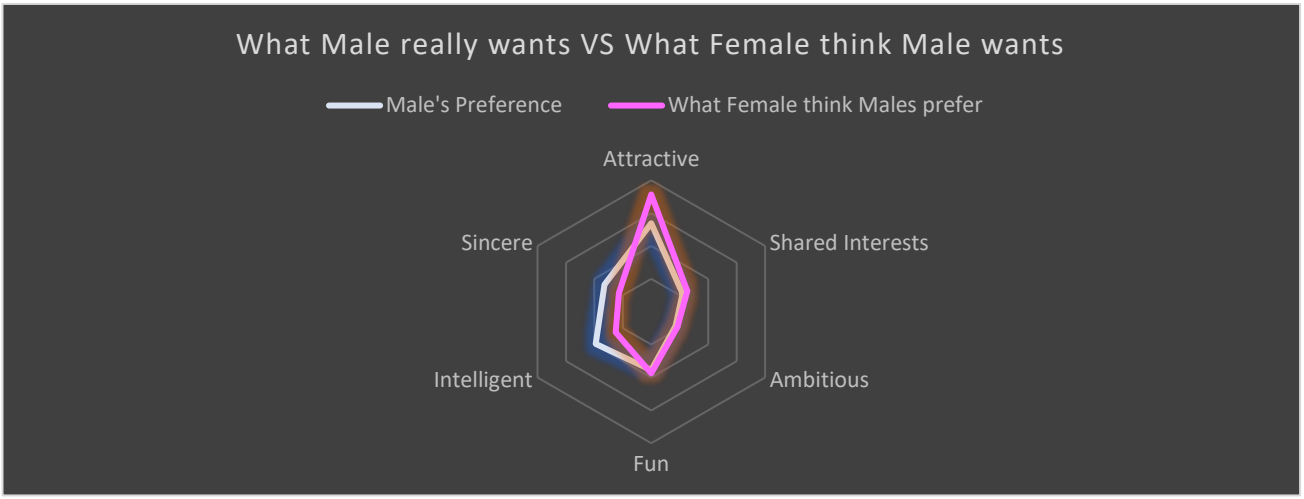
Values	Male (M)	Male (SD)	Female (M)	Female (SD)
Attractive	25.09	13.33	35.69	17.17
Sincere	15.18	7.13	11.34	6.25
Intelligent	16.28	6.71	12.53	5.14
Fun	18.12	6.64	18.73	6.51
Ambitious	14.23	7.35	9.23	5.31
Shared interests	11.07	6.10	12.65	6.13

It is very clear that both of the sex estimates the Attractiveness variable as the most important to the opposite sex, but while the male's distribution is more equal to all the attributes, the females gives more weight to Attractiveness and shrink all the others. The SD of Attractiveness in both of the sexes (male's SD = 13.33; Female's SD = 17.17) shows a big variance in each sex group, and for that moderate the result. Also, for both sex the Fun variable was the second most important to the opposite sex, but without any difference between the sexes.

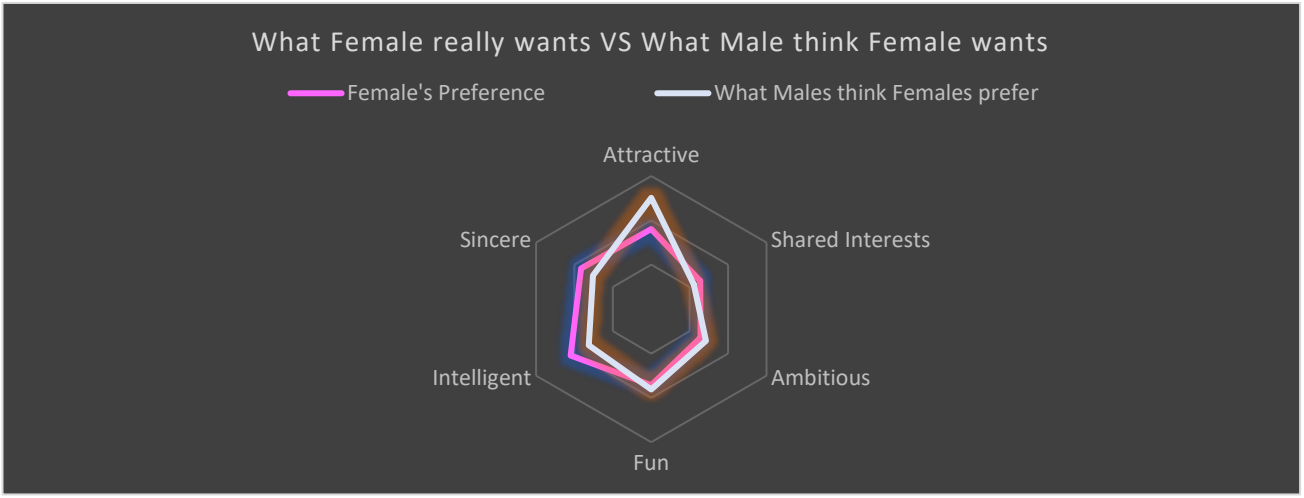


4. What male or female prefer VS what the opposite sex think they prefer?

One of the interesting questions about human groups is trying to understand group perceptions on other groups. It can be conducted in many ways, but in this data set we can get an insight about how males and females' percept the opposite sex preference. To answer this question, the results from the last two questions compared to one another. First let's look at male's preference and female perceptions on what males look for in a date. We can see that while female successfully understand male's preference on Shared interests, Ambitious and Fun, they give more weight to Attractiveness than males prefer and far less importance on Sincere and Intelligent that male's really looks for.



Now, let's look at the opposite direction –female preference and males' perceptions on what females look for in a date. Like the females, while male successfully understand female's preference on Fun and Ambitious, they give more weight on the Attractiveness than females prefer and less weight on Sincere and Intelligent that female's really wants.



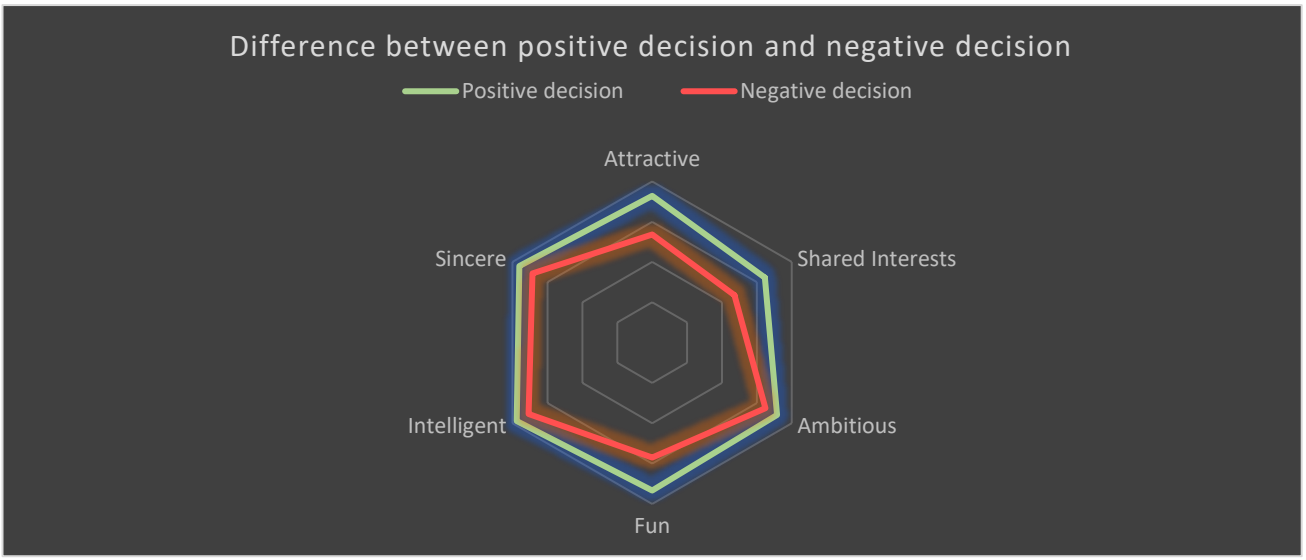
5. What is the main difference between a positive and a negative decision of the subjects when they select a partner?

Until now we explorer the gender preference before the experiment. But how the subjects really behave during the experiment, and what are the difference between individuals when they decide to select their date as a potential mate and individuals who decide to reject their date? To answer this question, it was conducted t tests that compere the mean score of each one of the six attributes within the two groups. It is important to note that in the experiment, the six attributes have given a different point scale - Instead a total of 100 points to all of the six attributes, each one have given a scale between 0 (Awful) and 10 (Great). In the table below we have all the t test results in order from the strongest statistically significant results to the lowest.

Variable Name	**Group Name**	**Mean value**	**SD value**	**t test value**	**p value**
Attractive	Positive Decision	7.285	1.5334	t (8068) = 51.61	p < .000
	Negative Decision	5.367	1.8211		
Fun	Positive Decision	7.334	1.5121	t (8020) = 42.27	p < .000
	Negative Decision	5.698	1.9547		
Shared interests	Positive Decision	6.463	1.8408	t (7147) = 37.98	p < .000
	Negative Decision	4.719	2.0732		
Intelligent	Positive Decision	7.757	1.3296	t (8036) = 20.59	p < .000
	Negative Decision	7.076	1.6386		
Sincere	Positive Decision	7.596	1.5135	t (8028) = 19.84	p < .000
	Negative Decision	6.858	1.8305		
Ambitious	Positive Decision	7.159	1.5920	t (7538) = 16.75	p < .000
	Negative Decision	6.493	1.8812		

It was found a statistically significant difference between all of the attributes. The most important parameters for individuals who decide a positive decision is Attractiveness and Fun both for females and males. These two parameters are matched to the parameters that rise from the third question. Therefore, males and females think the opposite sex prefer Attractiveness and Fun, and when they

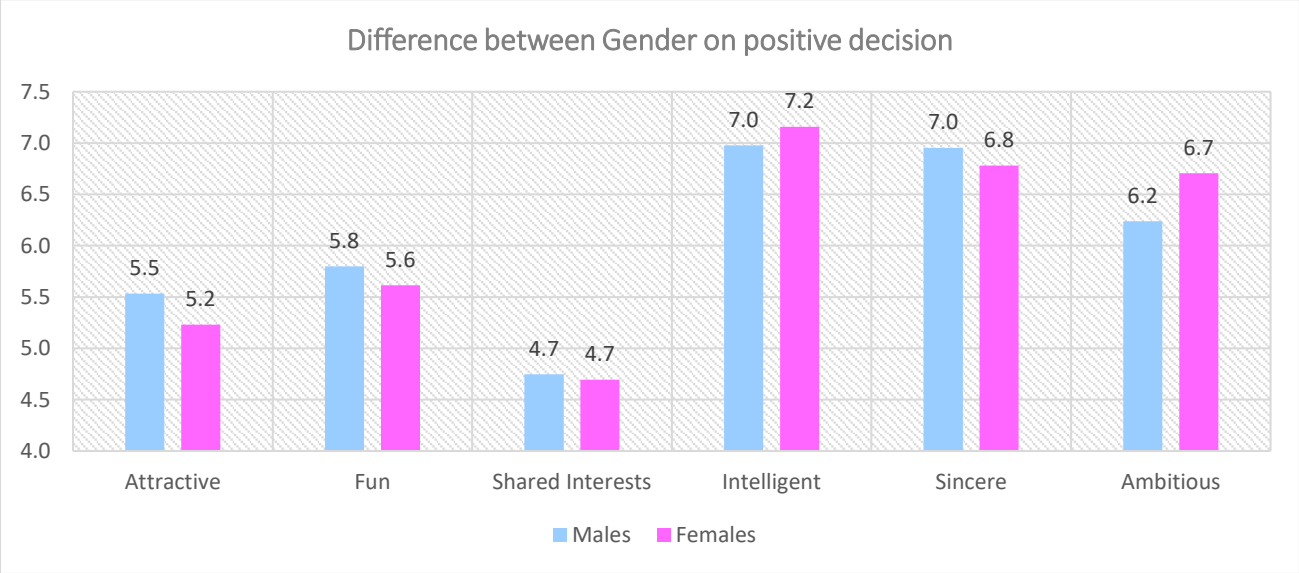
decide a positive or a negative decision these two parameters has the biggest effect on their choice. In the chart below we can see that overall all the six attributes mean score are different form a positive decision to a negative decision, but the most weight goes to Attractive and Fun.



Now, it is interesting to explorer what are the difference between males and females by positive decision and negative decision on the six attributes. To do so, it was conducted 12 t tests – 6 tests to understand the difference in gender by positive decision and 6 tests for the negative decisions. First, let's look on the results of the positive decision group. The results are in the table below.

Difference between Gender on positive decision					
Variable Name	**Group Name**	**Mean value**	**SD value**	**t test value**	**p value**
Attractive	Male	7.449	1.4268	t (3028) = 7.12	p < .000
	Female	7.073	1.6379		
Fun	Male	7.296	1.4681	t (3135) = -1.63	p > .05
	Female	7.382	1.5660		
Shared interests	Male	6.372	1.8451	t (2938) = -3.22	p < .001
	Female	6.584	1.8286		
Intelligent	Male	7.621	1.3329	t (3280) = -6.89	p < .000
	Female	7.932	1.3049		
Sincere	Male	7.568	1.4488	t (3103) = -1.23	p > .05
	Female	7.633	1.5929		
Ambitious	Male	6.995	1.5581	t (2992) = -6.77	p < .000
	Female	7.375	1.6108		

In the positive decision mate selection, there was a statistically significant difference between gender in Attractive, Shared interests, Intelligent and Ambitious whereas there was no significant difference in Fun and Sincere. while in the Attractive variable males were more influence by Attraction than females, in all the statistically significant other variables the female influenced more than males.

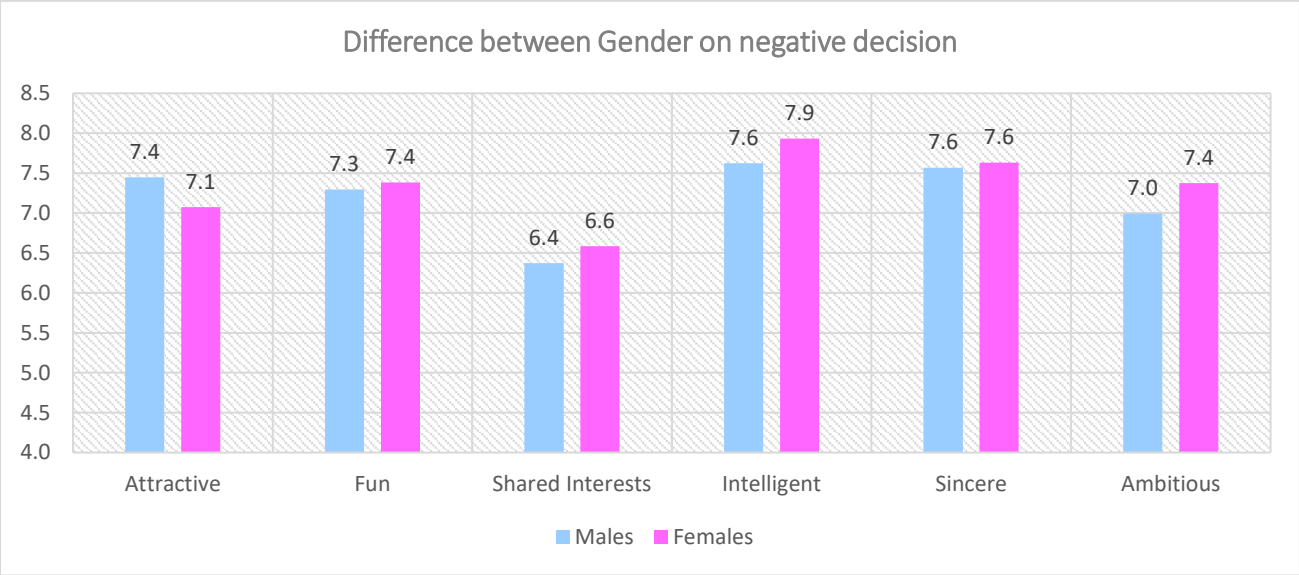


Now, let's look on the negative decision group. The results are in the table below.

Difference between Gender on negative decision					
Variable Name	**Group Name**	**Mean value**	**SD value**	**t test value**	**p value**
Attractive	Male	5.532	1.7344	t (4609) = 5.66	p < .000
	Female	5.232	1.8792		
Fun	Male	5.798	1.8525	t (4544) = 3.21	p < .001
	Female	5.614	2.0329		
Shared interests	Male	4.747	2.0134	t (4084) = 0.79	p > .05
	Female	4.696	2.1224		
Intelligent	Male	6.977	1.5518	t (4559) = -3.74	p < .000
	Female	7.157	1.7028		
Sincere	Male	6.953	1.6986	t (4598) = 3.22	p < .001
	Female	6.780	1.9293		
Ambitious	Male	6.238	1.7901	t (4334) = -8.30	p < .000
	Female	6.704	1.9283		

In the negative decision mate selection, there was a statistically significant difference between gender in all the variables beside Shared interests. while in the Attractive, Fun and Sincere variables males

were more influence than females, in all the statistically significant other variables (Intelligent & Ambitious) the female were more influence than males.



6. What are the best factors that contribute a positive selection?

We already know that the most influential variables on mate selection is Attraction and Fun. To research this more deeply I was created two variables for each subject: positive rate and mean score of each one of the six attributes. The positive score is a percentage score that was given to each subject and was created by dividing the positive partners decisions with the total partners. For example, if the subject had 20 dates and 10 partners choose a positive decision, the subject gets a positive rate of 50%. The mean score of the six attributes were calculate from all of the partners scores. With these two variables it was conducted a Pearson correlation coefficient to evaluate the strength of each variable on a positive decision. The results are in the table below.

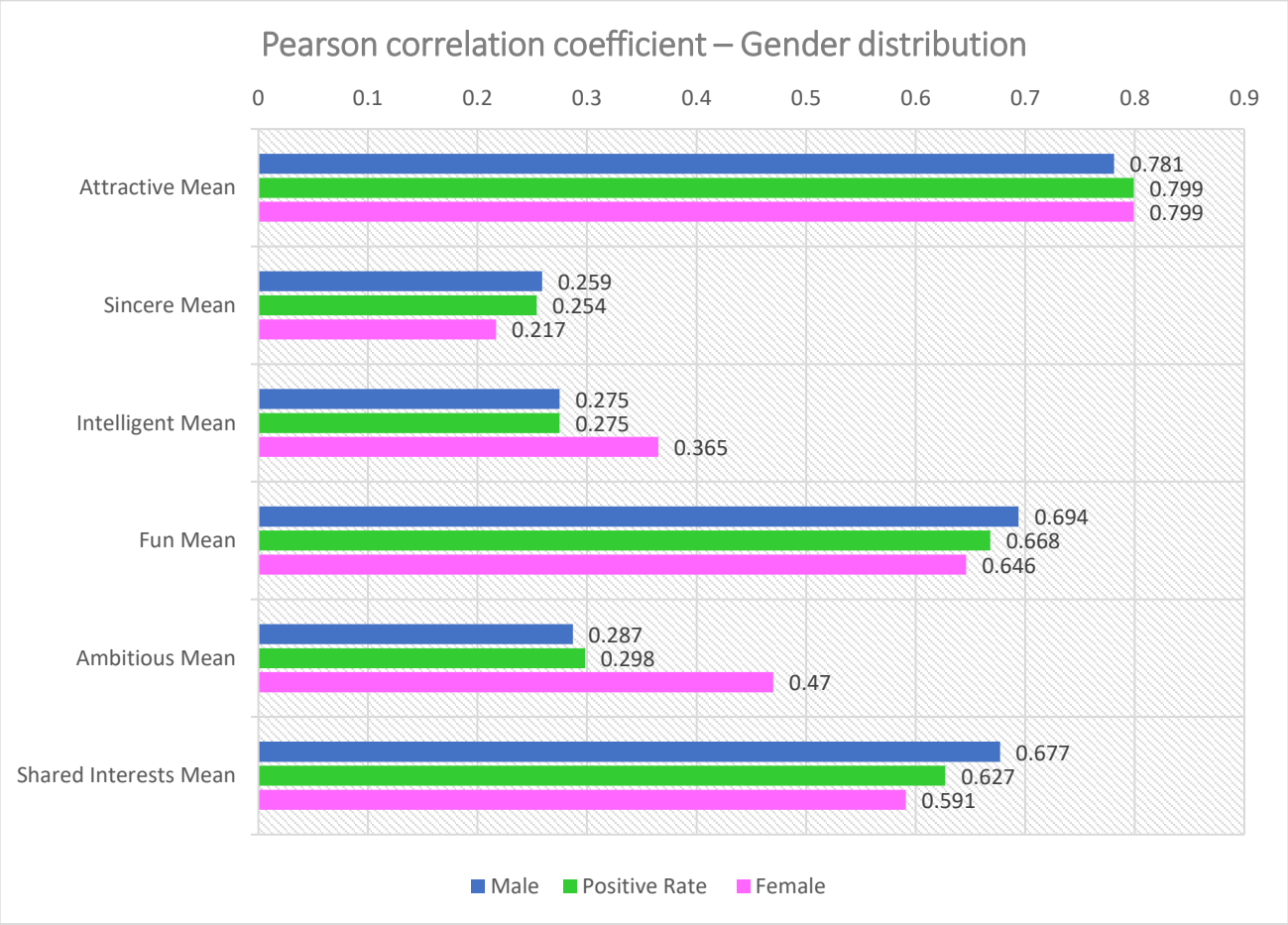
Pearson correlation coefficient – Positive Rate and six attributes mean

	Positive Rate	Attractive Mean	Sincere Mean	Intelligent Mean	Fun Mean	Ambitious Mean	Shared interests Mean
Positive Rate		0.799**	0.254**	0.275**	0.668**	0.298**	0.627**
Attractive Mean	0.799**		0.32**	0.295**	0.697**	0.355**	0.647**
Sincere Mean	0.254**	0.32**		0.678**	0.406**	0.416**	0.45**
Intelligent Mean	0.275**	0.295**	0.678**		0.377**	0.683**	0.501**
Fun Mean	0.668**	0.697**	0.406**	0.377**		0.486**	0.766**
Ambitious Mean	0.298**	0.355**	0.416**	0.683**	0.486**		0.516**
Shared Interest Mean	0.627**	0.647**	0.45**	0.501**	0.766**	0.516**	

**. Correlation is significant at the 0.01 level (2-tailed).

As we can see there is a strong and positive connection between Positive rate and three variables: Attraction, Fun and Sheared interest. In means when Attractive, Fun and Sheared interest go's up the positive rate go's up too. Also, there is a strong connection between all of the three – when a subject more Attractive to a partner he also considered more Fun and with sheared interest. Furthermore, Fun and Shared interests have a very strong connection maybe because when you shear something together like a Hobby it also more Fun doing that together. Least, there is a strong connection between Intelligent, Sincere and Ambitious and it make sense because Intelligent people considered to be Sincerer and Ambitious.

Now, let's look on the Gender distribution within the individual results.

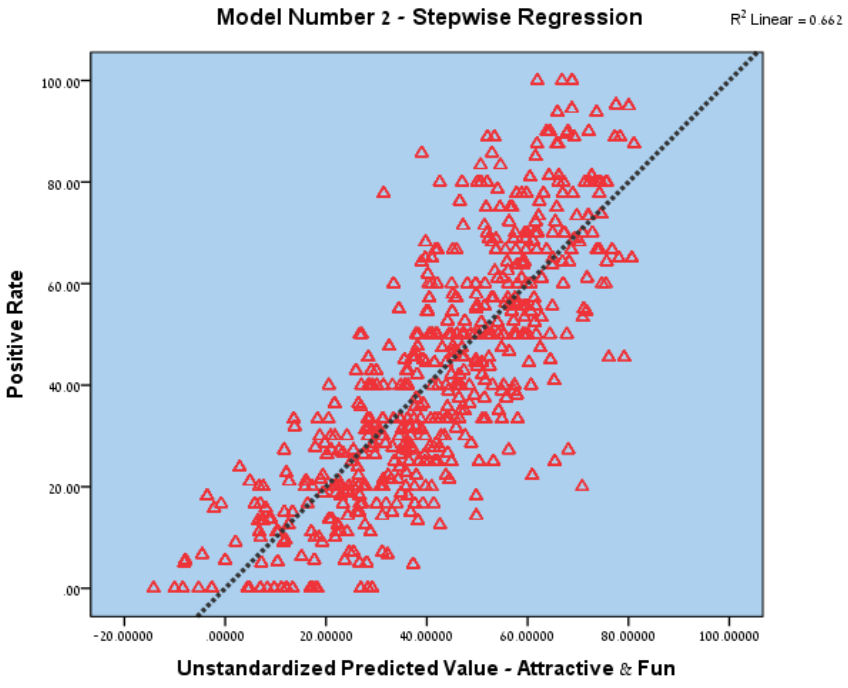


while there is no difference in mate positive selection between males and females on Attractive, Sincere, and Fun, there is a big difference on the others. For Intelligent, females receive more positive rate from males who believe they are Intelligent whereas it does not occur for males. The same pattern occurs in the Ambitious variable. For Shared interests we can see the opposite state, while males receive more positive rate from females who believe they are having the same interests, females don’t receive the same rate. When we have the correlation, we can test regression models that try to predict

the chances of positive mate selection among individuals. For the purpose of that it was conducted a stepwise regression tests to predict the most accurate model. The results in the table below.

Steps	**Variables**	**B**	**SE B**	**β**	**R^2**	**Δ R^2**
Step 1	Attractive	15.94	0.13	0.799***	0.638***	0.638***
	Constant	-56.75				
Step 2	Attractive	12.93	0.17	0.648***	0.638***	0.024***
	Fun	5.07	0.20	0.216***	0.662***	
	Constant	-70.60				
Step 3	Attractive	12.46	0.18	0.625***	0.638***	0.004***
	Fun	3.54	0.25	0.151***	0.662***	
	Shared Interest	2.71	0.25	0.107***	0.667***	
	Constant	-72.75				
B = the x value (mean) of each variable SE B = std. Error of x value β = Pearson correlation strength R^2 = The explained variance Δ R^2 = The change in the contribution of each variable to the model					*p<.05 **p<.01 ***p<.001	

The regression was tested 3 models – one with Attractive, second with Attractive and Fun, third with both of them and shared interest. The best model among all of them was model number 2. The model predicts 66.2% of positive rate when we have Attractive and Fun values. I was rejected the third model because the shared interest contributes only 0.004% to the model and has no effect.



Now, for example, if someone rate his mate with an Attractive score of 7 and Fun score of 3, we can insert the values into the model equation and learn what will be his positive rate. Let's try it:

Y (Positive Rate) = Constant + (Attractive B * value) + (Fun B * Value)

Y = -70.60 + 12.93*7 + 5.07*3

Y = 35.12

So, the positive rate on his mate will be 35.12% which are by the model 66.2% of his total positive rate. Probably he will not proceed to a second date.

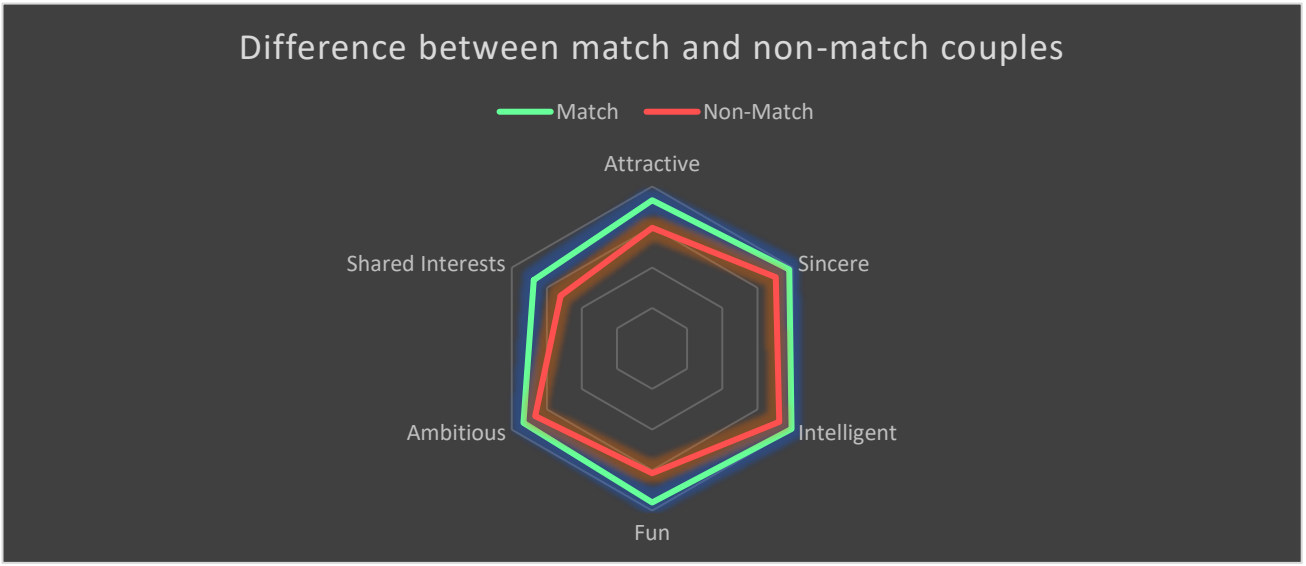
7. What is the main difference between a match couple and a nonmatch couple within the six attributes?

A match couple are those who both decide a positive decision, whereas nonmatch couple are those who one or both of them decide to reject their date. To test it, I was running a t test between the mean score of the match and nonmatch couples. The results are in the table below order by the most statistically significant t score to the lowest.

Variable Name	**Group Name**	**Mean value**	**SD value**	**t test value**	**p value**
Fun	Match	7.599	1.4945	t (2416) = 30.74	p < .000
	Nonmatch	6.155	1.9461		
Attractive	Match	7.320	1.5653	t (2320) = 28.11	p < .000
	Nonmatch	5.961	1.9408		
Shared interests	Match	6.754	1.8468	t (2013) = 26.3	p < .000
	Nonmatch	5.208	2.1206		
Intelligent	Match	7.950	1.2506	t (2353) = 18.01	p < .000
	Nonmatch	7.250	1.5787		
Sincere	Match	7.809	1.4512	t (2276) = 17.06	p < .000
	Nonmatch	7.046	1.7659		
Ambitious	Match	7.333	1.5754	t (2072) = 13.59	p < .000
	Nonmatch	6.664	1.8149		

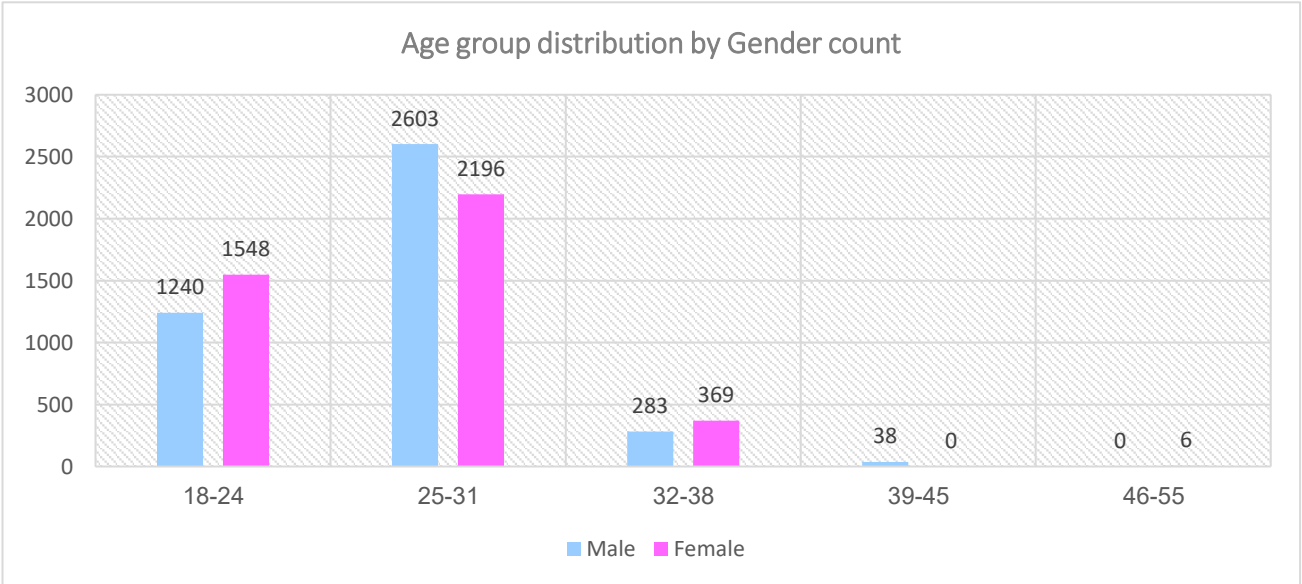
In the previous tests we notice that Attractive and Fun are the most important variables for couples, and by perception and positive rate the Attractiveness was more statistically significant then Fun. The findings above shows the opposite direction – the most important variable between a match couple was Fun and after that Attractiveness. This teach us that individuals' percept and select their mate based on Attractive and Fun, but eventually the Fun variable is the most important thing when couples interact together and in the second place their attraction to each other. Also, in the chart below we can

see that overall all the variables between match and nonmatch couples were statistically different, and all of them contribute to the whole picture.



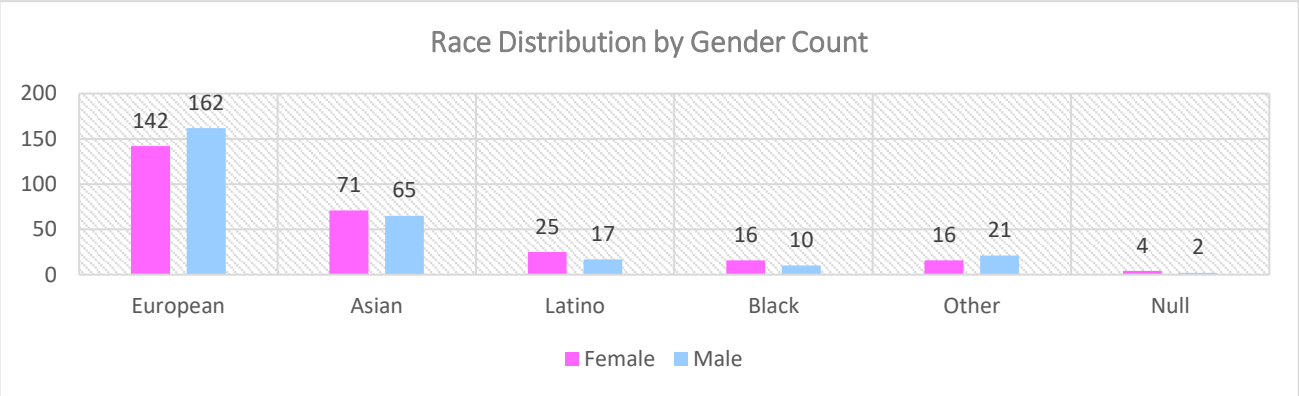
8. What is the difference between gender, age groups and race by the Attractiveness and Fun attributes on positive decision?

As we saw in the previous questions there is a big difference in positive mate selection between males and females, but what will happen to the results if we will add two crucial variables: age group and race group. Age is a critical variable to all of our decision making. Young people decisions usually base on fast, risk taking and impulsive behavior and whereas older people decisions are more reasonable and compromise. In the experiment the youngest age was 18 and the oldest was 55. It is interesting to check how age contribute to the decisions making of mate selection. To find the answer I was create five age group.



as we can see, groups number 1,2 and 3 is the major groups in the experiment. Group number 4 have 38 subjects but all of them were males, and group number 5 have only 6 female subjects. When that being said, group number 4 and 5 dropped from analysis.

In addition, race can influence on our perspective in mate selection. It is not just the race but a mix of variables that connected to race in a cultural way. It is interesting to learn if there is any difference between the races when they select a mate. The "Other" group and the null values dropped from the analysis.



To answer this question, it was conducted Three-Way ANOVA test for two of the most influence variables on mate selection – Attractiveness and Fun.

Tree-Way ANOVA tests reveal seven things:

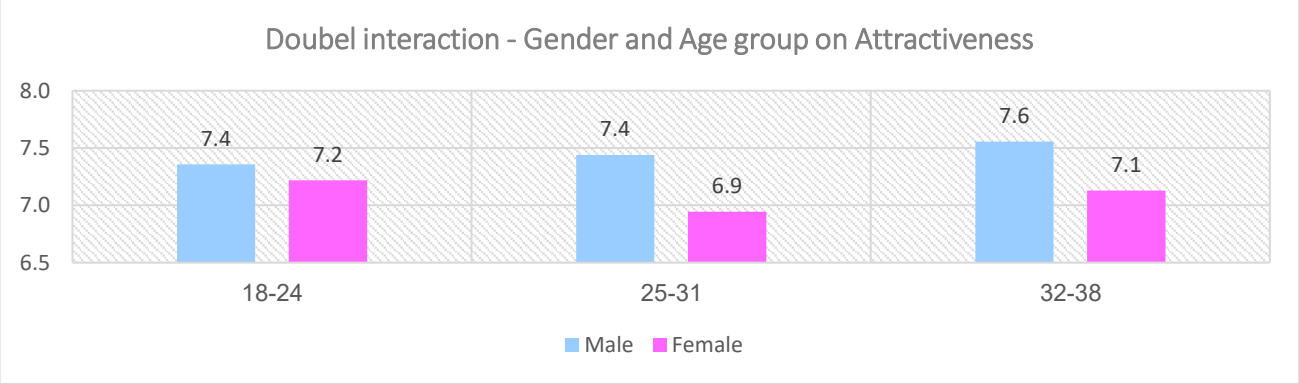
1. The difference between group number 1 (gender) on the tested variable.
2. The difference between group number 2 (age group) on the tested variable.
3. The difference between group number 3 (race group) on the tested variable.
4. Double interaction between group 1 and group 2 on the tested variable.
5. Double interaction between group 1 and group 3 on the tested variable.
6. Double interaction between group 2 and group 3 on the tested variable.
7. Triple interaction between group 1 group 2 and group 3 on the tested variable.

<u>Variable number 1 – Attraction – Three-way ANOVA results:</u>

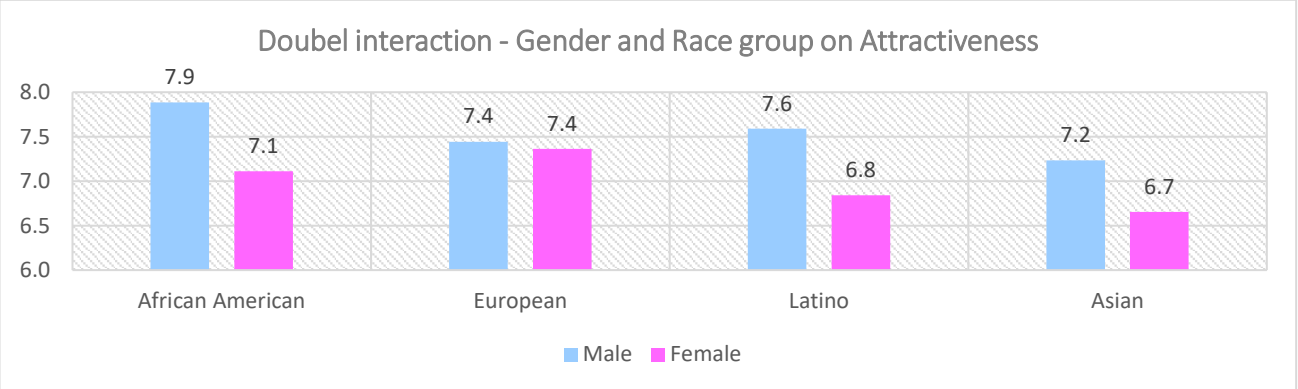
To check if there is any difference in gender, age group and race on Attractive score in positive decision mate selection it was conducted Three-Way ANOVA analysis. In the analysis it was found that there is a statistically significant difference between gender without the contribution of age group and race $F(1,3159) = 15.32$, $P<.000$. In other words, the Attractiveness mean score of males ($M=7.42$, $SD = 1.39$) is statistically significantly higher than females ($M=7.06$, $SD = 1.63$). In addition, it was found

that there is not a statistically significant difference between age group without the contribution of gender and race F (2,3159) = 1.03, P>.05. meaning, the Attractiveness mean score of age group 1 (18-24) (M=7.29, SD = 1.54) is not statistically significant different than age group 2 (25-31) (M=7.24, SD = 1.49) or age group 3 (32-38) (M=7.27, SD = 1.61) nor difference between age group 2 and 3. Furthermore, it was found that there is a statistically significant difference between the race group without the contribution of gender and age group F (3,3159) = 7.81, P < .000. In a post hoc test from type Scheffe it was found that the Attractiveness mean score of Asian (M=6.95, SD = 1.53) is statistically significantly lower than African-American (M=7.46, SD = 1.53) and European (M=7.41, SD = 1.47) but not than Latino (M=7.17, SD = 1.54) nor difference between Asian, European and Latino.

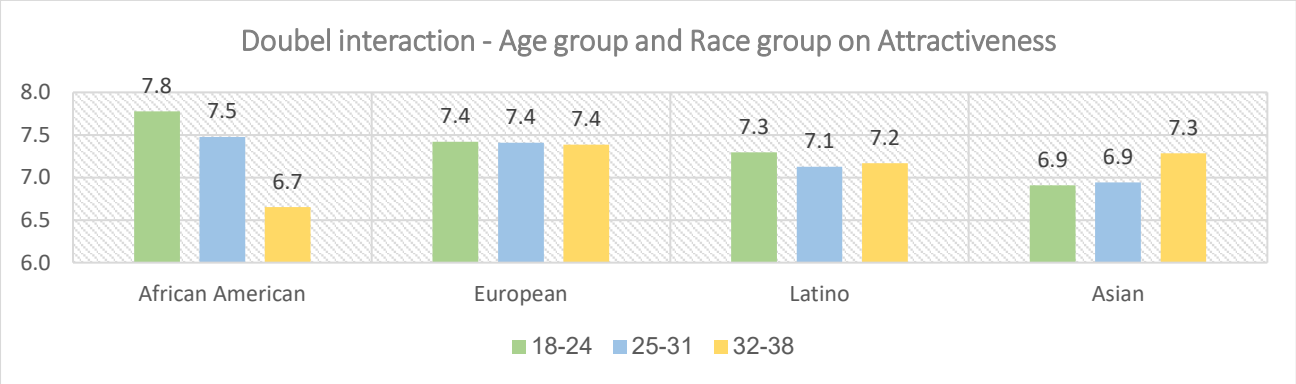
In the analysis it was not found a statistically significantly double interaction between Gender and Age group without the contribution of race group F (2,3159) =0.79, P>.05. It means there is no statistically significant difference between Attractiveness score among all the age group between males and females.



In addition, it was not found a statistically significantly double interaction between gender and race group without the contribution of age group F (2,3159) = 1.93, P>.05 meaning that there is no big difference between Attractiveness score of African American, European, Latino and Asian males than African American, European, Latino and Asian females.



Also, it was not found a statistically significantly double interaction between age group and race group without the contribution of gender F (6, 3159) =1.15, p>.05. in other words, there is no difference between Attractiveness score of African American, European, Latino and Asian in the age groups of 18-24 or 25-31 or 32-38.



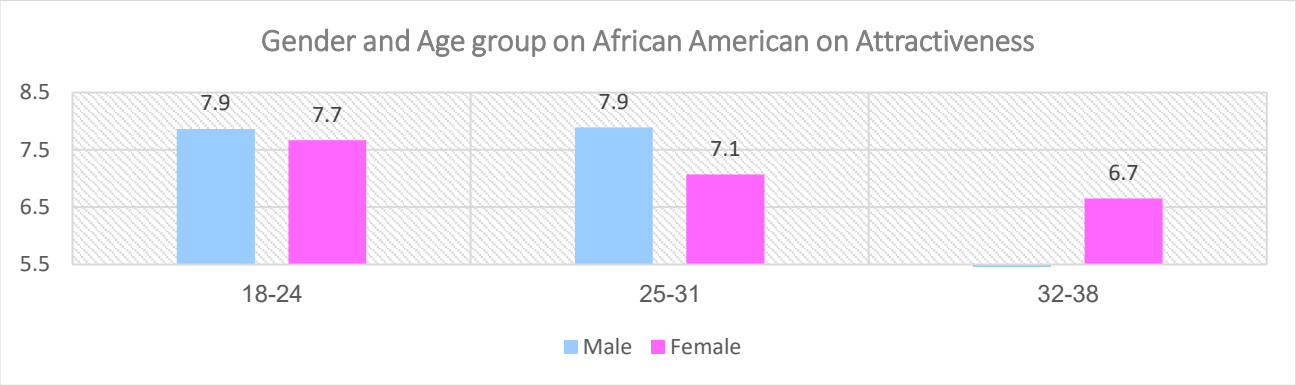
In contrast, it was found a statistically significantly triple interaction between gender, age group and race group F (5,3159) =3.77, P<.005. To check the interaction source, it was conducted t tests to understand what was the difference between gender, in each one of the race group divide by each one of the age group. The results are in the table below.

Group Statistics - Attraction							
*** Statistically significant = green | * not statistically significant = red**							
Age Group Subject	**race**	**gender**	**N**	**Mean**	**Std. Deviation**	**t test value**	**p value**
18-24	Black / African American	Male	30	7.867	.8604	t (52) = .70	P>0.05
		Female	24	7.667	1.1672		
	European	Male	337	7.338	1.3429	t (608) = -1.37	P>0.05
		Female	323	7.505	1.7237		
	Latino	Male	34	7.765	1.3939	t (67) = 2.63	P<0.05
		Female	35	6.843	1.5087		
	Asian	Male	145	7.207	1.4762	t (293) = 3.29	P<0.005
		Female	150	6.620	1.5787		
25-31	Black / African American	Male	66	7.894	1.3937	t (132) = 2.97	P<0.005
		Female	68	7.074	1.7731		
	European	Male	683	7.466	1.3655	t (987) = 1.93	P>0.05
		Female	306	7.281	1.4438		
	Latino	Male	81	7.481	1.1304	t (169) = 2.92	P<0.005
		Female	100	6.840	1.8019		
	Asian	Male	307	7.274	1.4874	t (546) = 5.77	P<0.000
		Female	241	6.521	1.5477		

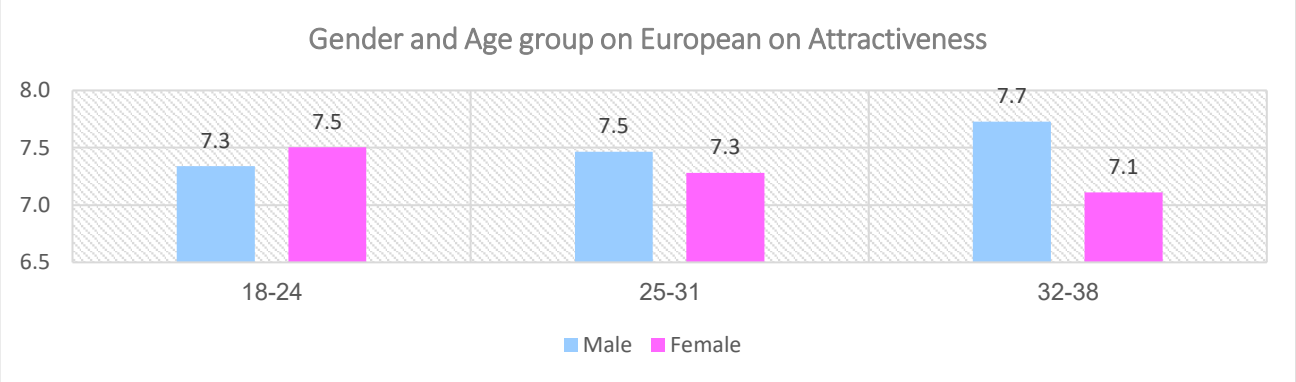
32-38	Black / African American	Male	0[a]	.	.	Male group is empty	
		Female	23	6.652	1.6951		
	European	Male	66	7.727	1.7146	t (146) = 2.16	P<0.05
		Female	82	7.110	1.7285		
	Latino	Male	4	8.250	.9574	t (16) = 1.67	P>0.05
		Female	14	6.857	1.5619		
	Asian	Male	18	6.778	1.0603	t (61) = -2.11	P<0.05
		Female	45	7.489	1.2545		
a. t cannot be computed because at least one of the groups is empty.							

In the results we can see the source of the triple interaction:

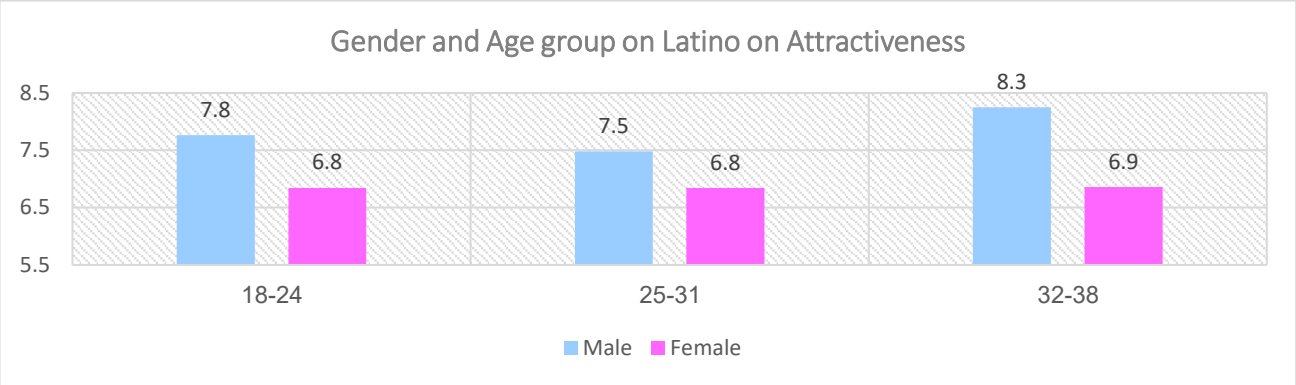
In the African American group, there is no statistically significantly difference in the age group of 18-24 between gender in the attraction score, but there is difference between gender in the age group of 25-31. Males gives more Attractiveness score than female when both of them choose a positive decision in mate selection. In the age group of 32-38 It was not conducted t test because the male group were empty.



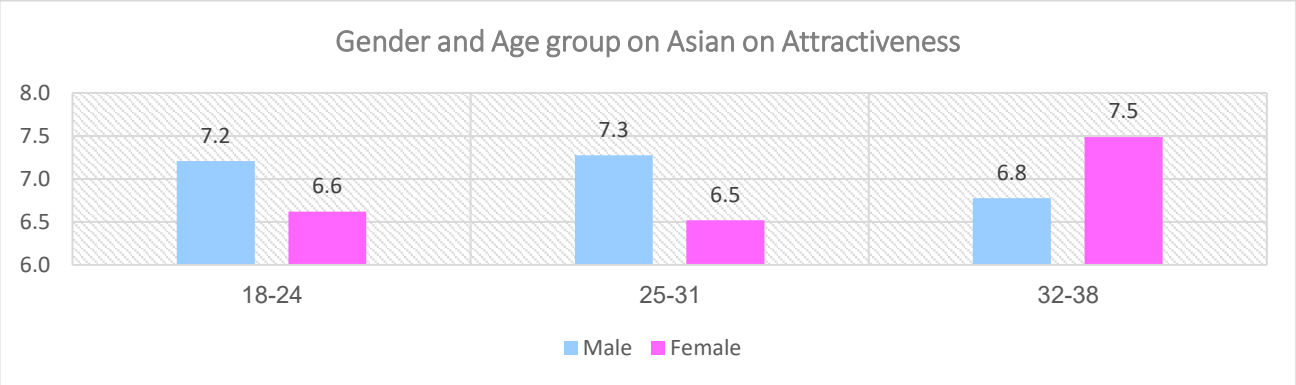
In the European group, there is no statistically significantly difference in age groups 18-24 and 25-31 on the Attractiveness score, but in the age group of 32-38 if was found a statistically significant difference between gender. Like the African American males, European males gives more Attractive score than females when both of them choose a positive decision in mate selection.



In the Latino group, there is a statistically significantly difference in age groups 18-24 and 25-31 on the Attractiveness score, and like African American and European males, males give more Attractive score than females when both of them choose a positive decision in mate selection. In the age of 32-38, despite there is big difference in the mean score of males and females, we can see there is not enough subjects for t test.



In the Asian groups, we see something interesting. Among all age groups there is a statistically significantly difference between gender in Attractiveness score. But, while in the age groups of 18-24 and 25-31 the male gives more Attractiveness score than females when both of them choose a positive decision in mate selection, in the age group of 32-38 the females give more score than males.

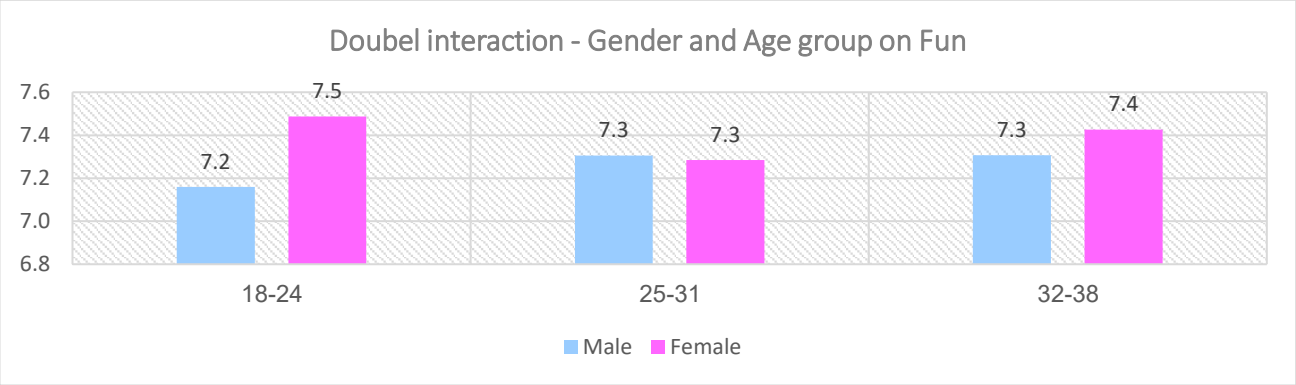


Variable number 2 – Fun – Three-way ANOVA results:

To check if there is any difference in gender, age group and race on Fun score in positive decision mate selection it was conducted Three-Way ANOVA analysis. In the analysis it was found that there is not a statistically significant difference between gender without the contribution of age group and race F (1,3117) = 1.65, P>.05. In other words, the Fun mean score of males (M=7.26, SD = 1.12) is not statistically significantly higher or lower than females (M=7.37, SD = 1.56). In addition, it was found that there is not a statistically significant difference between age group without the contribution

of gender and race F (2, 3117) = 1.24, P>.05. meaning, the Fun mean score of age group 1 (18-24) (M=7.32, SD = 1.57) is not statistically significant different than age group 2 (25-31) (M=7.29, SD = 1.46) or age group 3 (32-38) (M=7.38, SD = 1.49) nor difference between age group 2 and 3. In contrast, it was found that there is a statistically significant difference between the race group without the contribution of gender and age group F (3, 3117) = 8.88, P < .000. In a post hoc test from type Scheffe it was found that the Fun mean score of African-American (M=7.87, SD = 1.54) is statistically significantly higher than European (M=7.36, SD = 1.50), Asian (M=7.08, SD = 1.45) and Latino (M=7.29, SD = 1.52). Also, European are higher than Asian but not than Latino, plus nor difference between Asian and Latino.

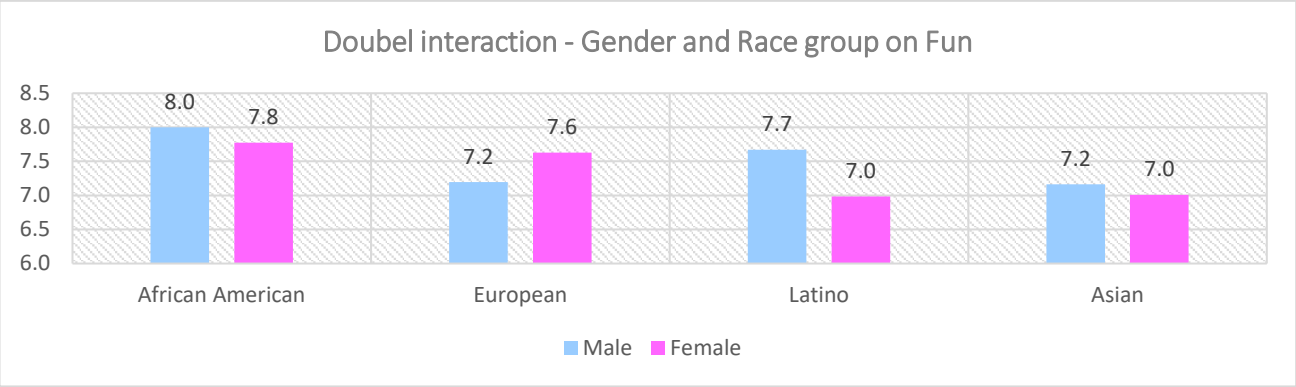
In the analysis it was not found a statistically significantly double interaction between gender and age group without the contribution of race group F (2, 3117) =1.74, P>.05. It means there is no statistically significant difference between Fun score among all the age group of males and females.



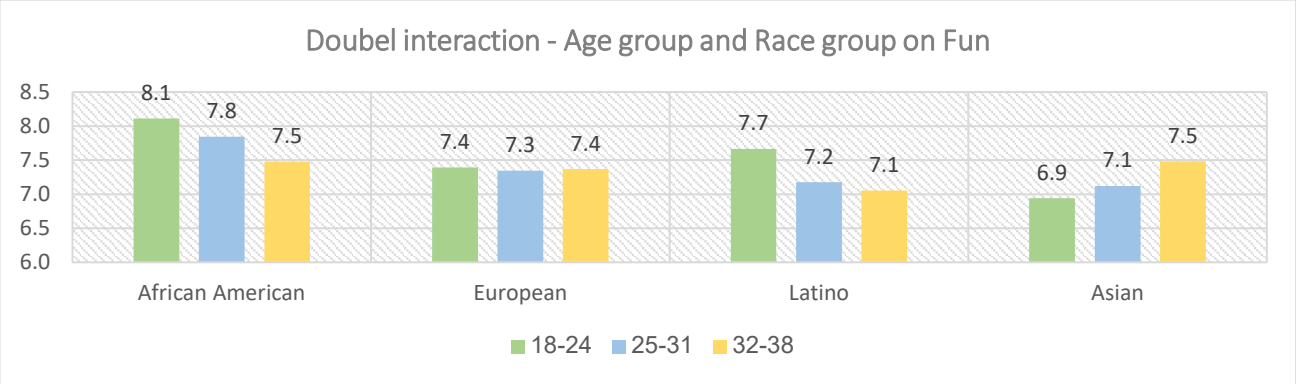
In addition, it was found a statistically significantly double interaction between gender and race group without the contribution of age group F (3, 3117) = 5.87, P<.001 meaning that there is a big difference between Fun score of African American, European, Latino and Asian males than African American, European, Latino and Asian females. To check the interaction source, it was conducted t tests to understand what was the difference between gender in each one of the race group.

Group Statistics							
race		**gender**	**N**	**Mean**	**SD value**	**t test value**	**p value**
Black / African American	Fun	Male	92	8.000	1.6641	t (204) = 1.05	P > .05
		Female	114	7.772	1.4331		
European	Fun	Male	1069	7.195	1.4398	t (1765) = -5.94	P<.000
		Female	698	7.628	1.5760		
Latino	Fun	Male	118	7.669	1.1843	t (262) = 3.70	P<.000
		Female	146	6.986	1.6978		
Asian	Fun	Male	466	7.165	1.4681	t (901) = 1.64	P > .05
		Female	437	7.007	1.4279		

As we can see the double interaction source comes from two race group: European and Latino. While in European group female Fun score are higher than males, in the Latino group the males Fun score are higher than females. In the African American and Asian there was no a statistically significant difference.

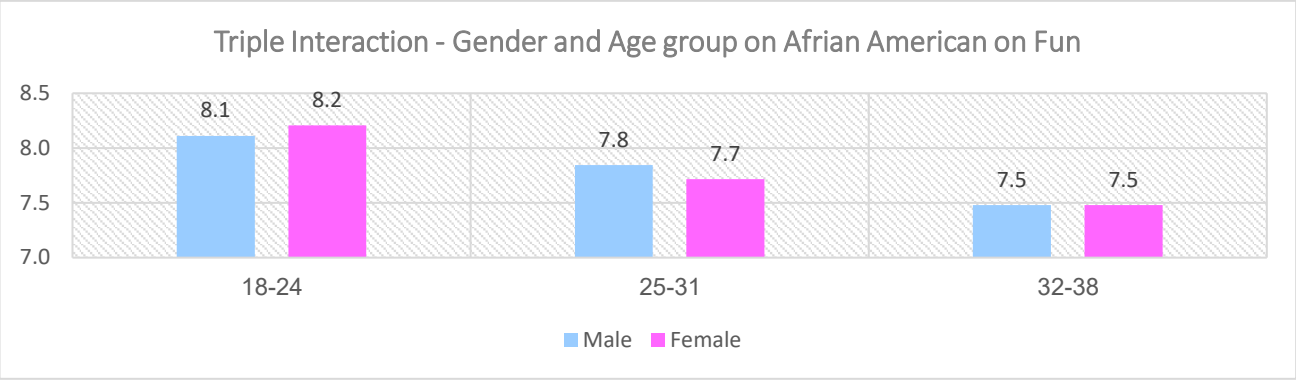


Also, it was not found a statistically significantly double interaction between age group and race group without the contribution of gender F (6, 3117) =1.98, P>.05. in other words, there is no difference between Fun score of African American, European, Latino and Asian in the age groups of 18-24 or 25-31 or 32-38.

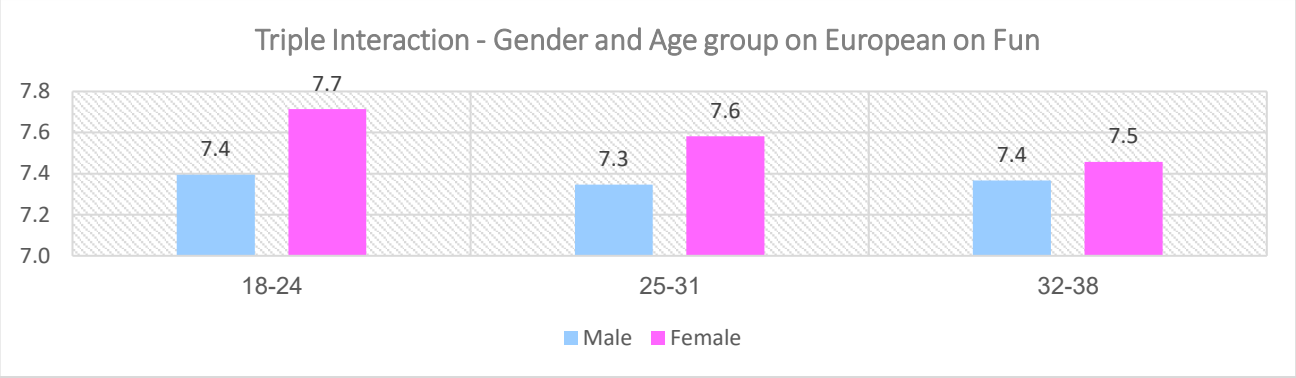


In addition, it was not found a statistically significantly triple interaction between gender, age group and race group F (5, 3117) =0.729, P>.05. it means that there is no difference between gender, in each one of the race group divide by each one of the age group. The results are in the charts in the next page. In each chart there is the race group, divide by the age group and gender. As we can see there is no difference between the gender in each of the age group within the race group.

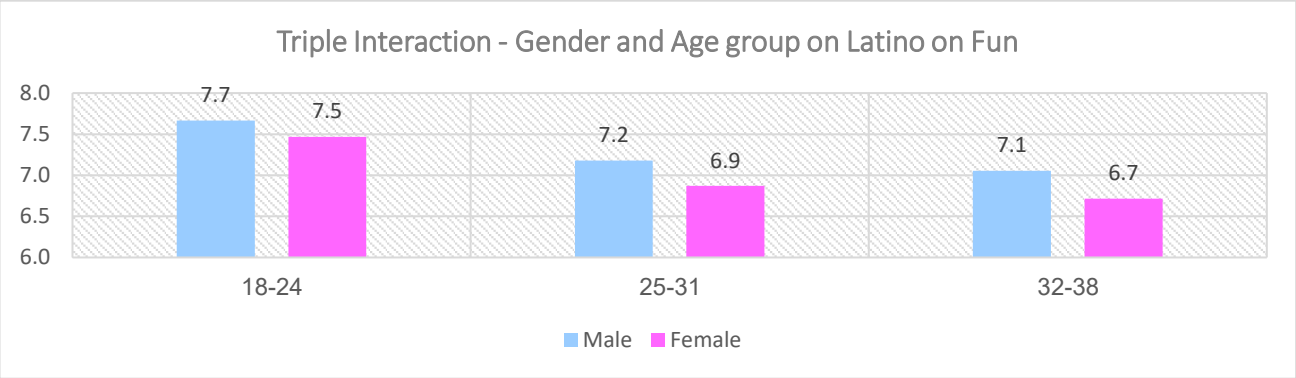
African American group:



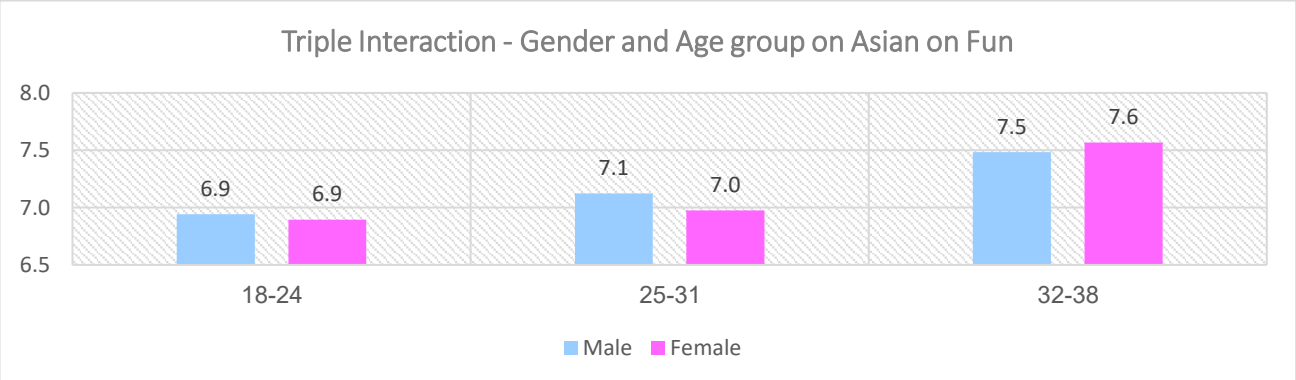
European group:



Latino group:



Asian groups:

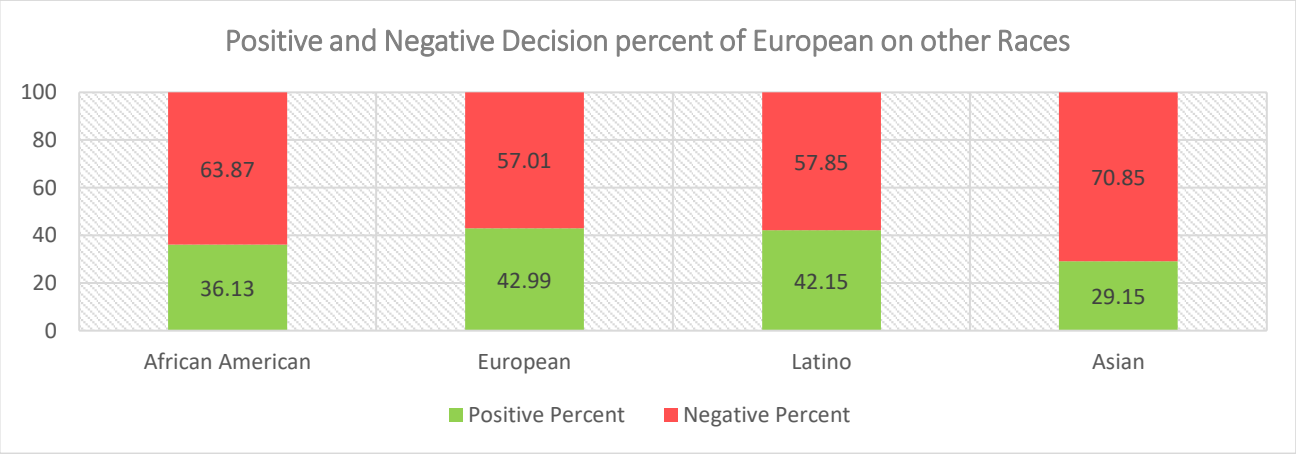


9. what was the positive decision percentage of one race on the other races?

It is interesting to see the distribution between the total dates and the total positive decision in each race on each race. For example, how many Europeans choose Europeans compare to African American or Latino race? To create the parentage for each race, I took two measures: The total dates for each race with each other race include their own race, and the total dates with positive decision for each race with each other races include their own race. Lets' see the results.

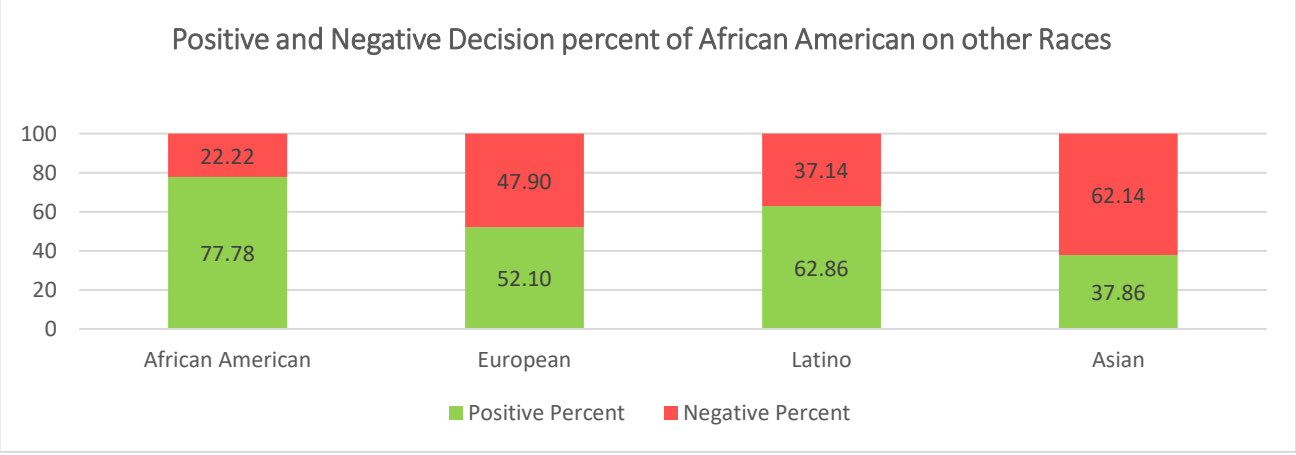
European:

In the European race group, we can see that the positive percent was higher when they met their own race and Latino race, But African American and Asian had a lower mate selection.



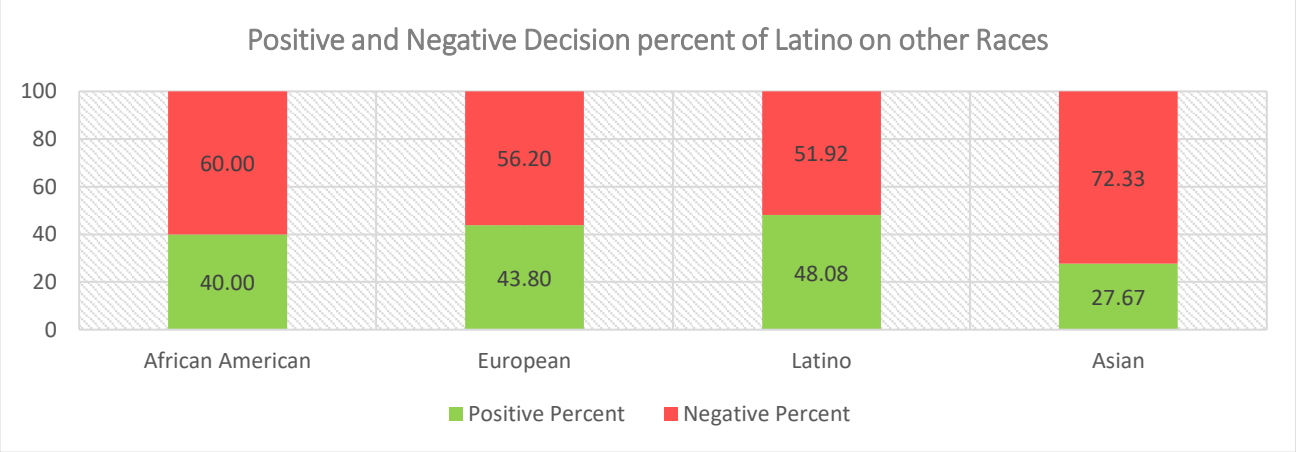
African American:

For the African American race group, the most desirable race groups was their own race group followed by the Latino group. The European group was with normal distribution and the Asian race group received the lower mate selection.



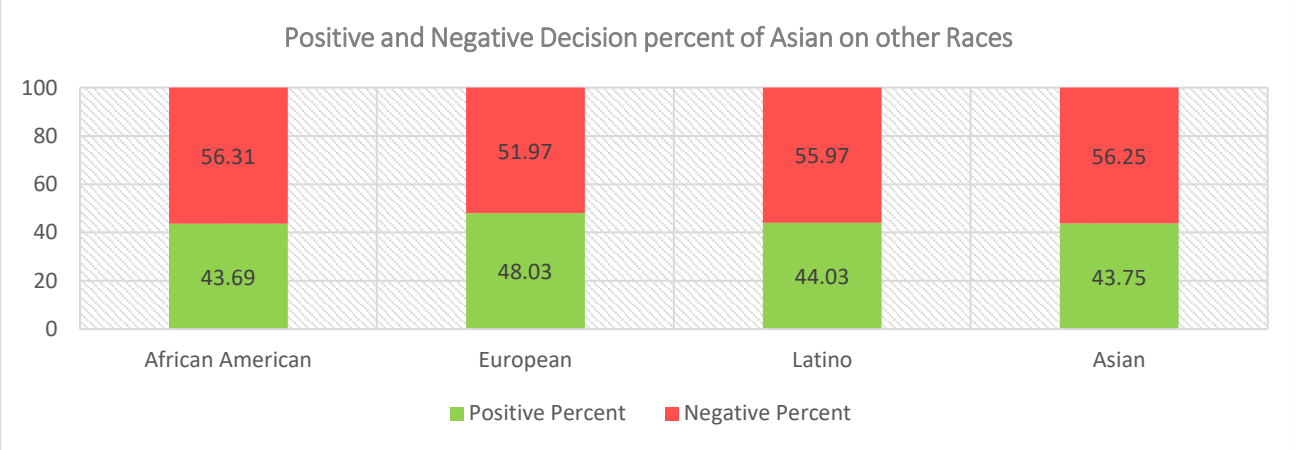
Latino:

The Latino race group, like the other race group, choose positive decision on their own race group followed by the European, African American and least the Asian group.



Asian:

The Asian group, in contrast to all the other race groups, choose the Europeans and Latino as the top desirable race groups followed by the same rate for their own race and the African American.



Summery and Conclusions

This report analyzes the Speed Dating Dataset, that was conducted by Columbia Business School professors Ray Fishman and Sheena Iyengar for their paper Gender Differences in Mate Selection: Evidence from a Speed Dating Experiment.

The purpose of the analysis was to test nine questions that aim to understand mate selection before date and during a date. The questions focused on three major groups (gender, age group and race

group) and try figure out what are the differences between them one by one or all together. This summery structured like the report above – questions and answers by layers.

1. What was the general preference of the subjects in all of the six attributes?

All the subjects were asked to rank their preferences before the date by six attributes – Attractive, Sincere, Intelligent, Fun, Ambitious and Shared interests. Overall subjects (males and females) shows a big preference to Attractiveness and Intelligent followed by Fun and Sincere and last Shared interests.

2. What is the main difference between male and female preferences?

If we divide the results from the previous questions to gender preference, we can see that males prefer first Attractiveness and then Intelligent, and females prefer the opposite first Intelligent and then Attractiveness. Also, while males had more extreme preference – most of their points was going to the two attributes and all the other had lower points, female spared their points more evenly throughout the attributes. Furthermore, in a series of t tests in was found a statistically significant differences between males and female by all the six attributes, and the biggest differences were in Attractive and Ambitious. Male rank Attractive more than females, and females rank Ambitious more than males.

3. What males or females think about the opposite sex preference in a date?

All the subjects were asked also to rank the opposite sex preference by the six attributes. In both of the sexes, the opposite sex ranked the Attractiveness score as the most important attribute in mate selection. However, and in contrasts to the extreme ranking of Attractiveness score of the males themselves, males ranked their points on the opposite sex preference more evenly than females that tend to put most of their weight on Attractiveness score. It means that males are more accurate when trying to predict female's preference than female's prediction male's preference.

4. What male or female prefer VS what the opposite sex think they prefer?

To answer more accurate on the last question, I took the real preference of males and females from question number one, and compere it between the scores of the second question. When we look on the female prediction, we can see that while they successfully understand male's preference on Shared interests, Ambitious and Fun, they give more weight to Attractiveness than males prefer and far less importance on Sincere and Intelligent that male's really looks for. furthermore, male behave the same like females but in a more moderate way. They successfully understand female's preference on Fun and Ambitious, and like the females, gives more weight on the Attractiveness than females prefer and less weight on Sincere and Intelligent that female's really wants. These results show that Attractiveness

is the most important thing we thing the opposite sex prefer, but our estimation is not quite accurate. Moreover, females and males underestimate the opposite sex wrongly when they put most of their weight on Attractiveness, while in reality people's preference is more complex and diverse.

5. What is the main difference between a positive and a negative decision of the subjects when they select a partner?

During the experiment the subjects were asked to rank their mates in each one of the six attributes each one with a scale between 0 (Awful) and 10 (Great). They were also asked to decide if they want to select their date as a potential mate or to reject him. So, what was the difference between individuals who decide a positive decision and those who decide to rejects their date on the six attributes rank? In a series of t tests, it was found a statistically significant difference in all of the six attributes, but the most profound variables were Attractive, Fun and Shared interests. It seems that these are, by reality and not by preference, the biggest variables that contribute a mate selection among individuals.

To take the analysis furthermore, for each group of mate selection (positive and negative) it was conducted t tests to analyze what was the difference between females and males within each group. In the positive group it was found a statistically significant difference between gender in Attractive, Shared interests, Intelligent and Ambitious. while in the Attractiveness score the males rank their date higher than females, in all the other variables females ranked their date higher than males. The Fun and Sincere rank were the same. when we compare it to the results above, we can conclude that Attractiveness is the most important variables for both sexes compare to the other variables, and within that variable, males tend to put more weight on Attractiveness than females. The Fun variable is the second most important variable among both sexes compare to the other variables, but within that variable there is no difference between the sexes – it is important in the same manner.

In the negative group there was a statistically significant difference between gender in all the variables beside Shared interests. while in the Attractive, Fun and Sincere variables males were more influence than females, in all the statistically significant other variables (Intelligent & Ambitious) the female were more influence than males. When we compare it to the results above, we can conclude that gender differences are diverse in most of the variables of mate selection no matter what their desicion.

6. What are the best factors that contribute a positive selection?

As we saw in the last question, Attractiveness and Fun is the most important variables on mate selection for both sexes. To test it more deeply, it was created a Pearson correlation coefficient between the mean score of each variable and the positive rate percent of each subject. The positive rate percent was created to each subject, by dividing all of his positive decision partners with his total partners.

In the analysis it was found a strong and positive connection between two groups. Group one was constructed from a strong positive connection between the positive rate percent and three variables: attraction, Fun and Shared interests. Group two was constructed from a strong and positive connection between Intelligent and two variables: Sincere and Ambitious. when we look on the gender distribution within the analysis, while there is no difference in mate positive selection between males and females on Attractive, Sincere, and Fun, there is a big difference on the others. For Intelligent, females receive more positive rate percent from males who believe they are Intelligent where as it does not occur for males. The same pattern occurs in the Ambitious variable. For Shared interests we can see the opposite state, while males get more positive rate percent from females who believe they are having the same interests, females don't receive the same rate.

The last part of the question analysis, it was conducted a stepwise regression to asses what is the best model to predict positive rate percent in mate selection. It was found that, the best model is based on the Attractiveness and Fun scores and it predicts a 66.2% of the total positive rate percent. when that been said, if you wish to predict what will be your positive rate percent on a mate, you can use the model equation. To do so, you need to rank your mate Attractiveness and Fun within a scale of 0 to 10. After that, insert your values into this equation:

$$Y = -70.60 + 12.93*\text{Attractive value} + 5.07*\text{Fun value}$$

For example, if your Attractive score is 8 and Fun score is 9 than let's put it in the equation to see what will be your positive rate percent.

$$Y = -70.60 + 12.93*8 + 5.07*9 = 78.47$$

So, your personal positive rate percent on that mate will be 78.47% which is 66.2% of your total positive rate. Probably you will proceed to a second date with that mate.

7. What is the main difference between a match couple and a nonmatch couple within the six attributes?

A match couple are those who both decide a positive decision, whereas nonmatch couple are those who one or both of them decide to reject their date. In a series of t tests between the two groups it was found a statistically significant difference between match couples and nonmatch couples. In the previous questions we notice that Attractive and Fun are the most important variables for couples, and by perception and positive rate percent the Attractiveness was more statistically significant then Fun. The findings of these t tests, shows the opposite direction – the most important variable between a

match couple was Fun and after that the Attractiveness. Based on these results, I conclude that individuals' percept and select their mate based on Attractive and Fun, but eventually the Fun variable is the most important thing when couples interact together and in the second place their attraction to each other.

8. What is the difference between gender, age groups and race by the Attractiveness and Fun attributes on positive decision?

As we conclude earlier Attractiveness and Fun is the most important variables in mate selection during a date. We saw also, there is a big difference between males and females when it comes to a positive mate selection. But what will happened if we will insert to the equation age group and race group. How age effect on our positive decision in mate selection? How race and color effect on our positive decision in mate selection? And what if both interact together with gender and has different effect? To understand that better it was conducted Three-Way ANOVA tests on the positive mate selection group, and between the gender, age group and race group. The Three-Way ANOVA reveal 7 effects – the effect on each group on the tested variable, three double interaction effect between two groups, and one triple interaction between all the groups on the tested variable. The age group divide into three groups: 18-24, 25-31 and 32-38. The race group divide into four groups: African American, European, Latino and Asian.

On the Attractiveness variable, it was found a statistically significant difference between gender and race group on the Attractiveness score of positive decision mate selection, but not in the age group. In the gender group, male rank their date higher than female, and in the race group the Asian rank their date lower than all the other race group, but between all the other race group there is no major difference. In addition, we saw a classic triple interaction between gender, age group and race group. A classic interaction occurs when there is no statistically significant difference between the levels of a single group, or levels of a dual group. In this analysis, although it was not found a double interaction between the groups, it was found a triple interaction. To find the source of the interaction it was conducted t tests for each race group and each age group between gender. in the African American group, the males give more Attractive score than females in the age group 25-31. In the European group, the males give more Attractive score than females in the age group 32-38. In the Latino group, the males give more Attractive score than females in the age group 18-24 and 25-31. In the Asian group, the males give more Attractive score than females in the age groups 18-24 and 25-31, but the females give more Attractive score than males in the age group of 32-38. In conclusion, we can see that males in the age between 18-31 tend to rank their mate higher than females in all the races, but there are no gender differences in older age. In the Asian group, females in the age group of 32-38

shows unique behavior, and their Attractiveness score are higher than Asian males and higher than all the females in the same age group in the other races.

On the Fun variable, it was found a statistically significant difference between race group on the Fun score of positive decision mate selection, but not in the gender or age group. In the race group, African American Fun score was higher than all the other race groups. Also, it was found that European Fun score was higher than Asian but not than Latino, nor difference between Latino and Asian. Furthermore, it was found a statistically significant double interaction between gender and race group on the Fun score. In the analysis it was found that while there is no difference in gender in the African American and the Asian race group, there was a statistically significant difference between gender in European and Latino. In the European group, female rank the Fun score higher than males, but in the Latino group males Fun score were higher than females. in contract to the Attractiveness score results, there was not a triple interaction between gender, age group and race group. In conclusion, the Fun variable, in most of age group, race group and gender have something in common. It is important in the same manner to female and males, by all the age groups and by all the races.

If we wish to explorer more the tango between Attractiveness and Fun on mate selection, we can do a One/Two-way MANOVA test to see if there is a simultaneous effect between these two variables on groups like gender, age group, race group, and more interesting groups in the dataset.

9. what was the positive decision percentage of one race on the other races?

The last question refers to the positive rate decisions of one race on itself and the other races. In other words, I wanted to check on a thin surface the Positive and Negative race selection on themselves and compare it to other races. To answer that, I took two measures for each race group: one the total date on any other race, and second to total positive decision on the same race and other races. These two allows to create a positive and negative mate selection percentage of each race on itself and other races. Overall, beside the Asian group, all the other groups had higher positive selection percentage on their own race. Also, the most undesirable race group was the Asians, and even they had lower positive rate on themselves compere to the other race group. In conclusion, most of the races prefer their own race when it comes to mate selection. this is not an absolute conclusion, and we need to research it more deeply within the subject's behavior.

Epilogue

When you go on a date it is important that you notice and know two major things: Fun and Attraction is the most important variables in mate selection. Both sexes prefer, and select their mate based on

these two variables on a date. Also, be aware that shared interest is another variable that contribute to a successful date. When you and your mate share these variables in a positive way, it is more likely that you will proceed to a second date.