In [1]:
```
import pandas as pd
import numpy as np
import seaborn
import matplotlib
```

In [2]:
```
%matplotlib inline
```

Survey Result Findings:

> The only question statisically different between groups (p=0.04) is Question 4 - "When considering the possible levels of achievement for each credit, I began with the description for “improved” and then moved on to “enhanced”, “superior”, and “conserving”, in that order. I used Mann Whitney Test with the actual scores of each participant to find p-value.
>
> The largest difference between scores for Question 4 is the neutral choice (3). 11 primed participants selected 3 while 4 non primed chose 3. The majority of non primed participants agreed or stongly agreed.

Convert str to in

In [16]:
```
non_primed = pd.read_pickle("non_primed_survey_q1.pickle")
```

In [18]:
```
non_primed[['Strongly Disagree (1)', '2', '3', '4', 'Strongly Agree
(5)', 'Response Count']] = non_primed[['Strongly Disagree (1)',
'2', '3', '4', 'Strongly Agree (5)', 'Response Count']].astype(int)
```

In [19]:
```
non_primed[['Rating Average']] = non_primed[['Rating Average']].ast
ype(float)
```

In [20]:
```
non_primed
```

Out[20]:

1	Answer Options	Strongly Disagree (1)	2	3	4	Strongly Agree (5)	Rating Average	Response Count
2	I am confident a project team could really ach...	1	2	7	7	9	3.81	26
3	I believe my score is above average compared t...	2	4	12	5	3	3.12	26
4	Seeing an example high-scoring Envision projec...	3	3	4	12	4	3.42	26
5	When considering the possible levels of achiev...	1	1	4	8	12	4.12	26
6	I made my decisions based on previous work exp...	2	3	6	8	7	3.58	26
7	I will use Envision on future projects.	2	4	14	4	2	3.00	26

In [21]:
```
primed = pd.read_pickle("primed_survey_q1.pickle")
```

In [22]:
```
primed[['Strongly Disagree (1)', '2', '3', '4', 'Strongly Agree
(5)', 'Response Count']] = primed[['Strongly Disagree (1)', '2',
'3', '4', 'Strongly Agree (5)', 'Response Count']].astype(int)
```

In [23]:
```
primed[['Rating Average']] = primed[['Rating Average']].astype(floa
t)
```

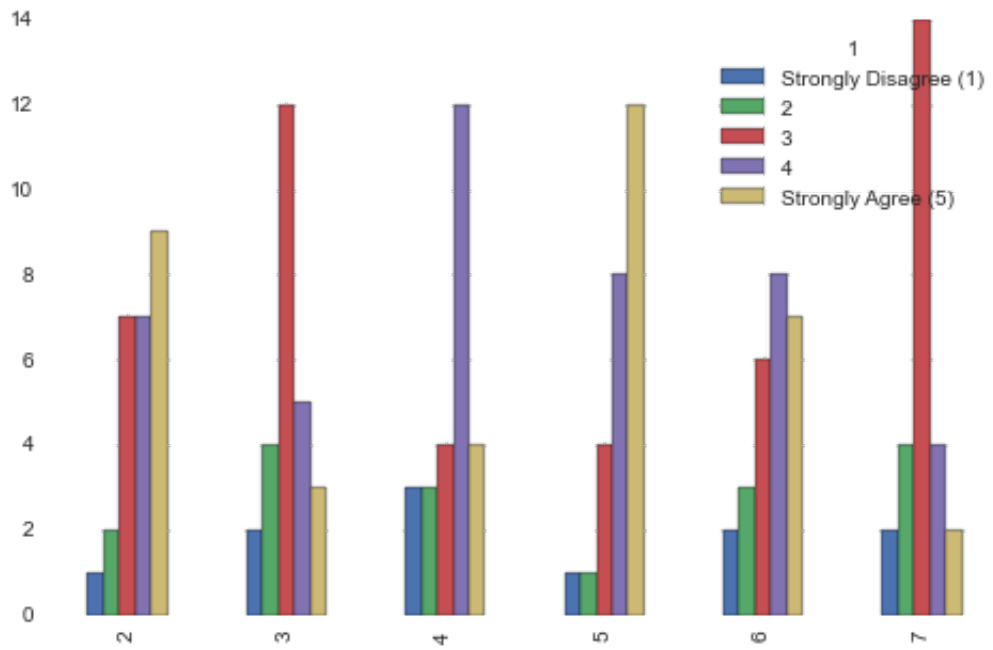
In [24]:
```
primed
```

Out[24]:

1	Answer Options	Strongly Disagree (1)	2	3	4	Strongly Agree (5)	Rating Average	Response Count
2	I am confident a project team could really ach...	2	0	8	12	8	3.80	30
3	I believe the Envision score I came up with is...	2	3	13	11	1	3.20	30
4	The Psomas Engineeringÿexample project motivat...	1	2	8	16	3	3.60	30
5	When considering the possible levels of achiev...	1	1	11	10	7	3.70	30
6	I made my decisions based on previous work exp...	3	3	10	11	3	3.27	30
7	I will use Envision on future projects.	0	1	20	7	2	3.33	30

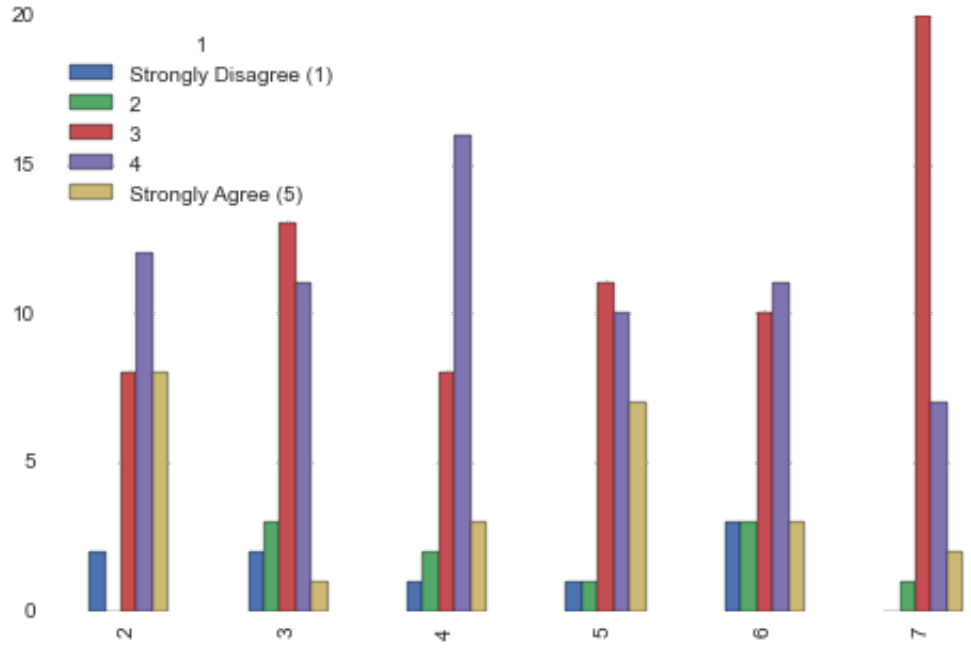
In [34]:
```
non_primed.iloc[:,:6].plot(kind='bar', figsize=(8,5))
```

Out[34]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x10c44a438>
```



In [35]:
```
primed.iloc[:,:6].plot(kind='bar', figsize=(8,5))
```

Out[35]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x10c900a90>
```



Mann Whitney Test Using Actaul Scores, Not Frequency Counts

In [36]:
```
non_primed_actual = pd.read_csv("non-primed-survey-q1-actual-respon
ses.csv")
```

In [37]:
```
primed_actual = pd.read_csv("primed-survey-q1-actual-responses.cs
v")
```

In [39]:
```
from scipy.stats import mannwhitneyu

mannwhitneyu(non_primed_actual['q1'], primed_actual['q1'])
```

Out[39]:
```
MannwhitneyuResult(statistic=387.0, pvalue=0.48286488788288667)
```

In [40]:
```
mannwhitneyu(non_primed_actual['q2'], primed_actual['q2'])
```

Out[40]:
```
MannwhitneyuResult(statistic=360.0, pvalue=0.30324567159425442)
```

In [41]:
```
mannwhitneyu(non_primed_actual['q3'], primed_actual['q3'])
```

Out[41]:
```
MannwhitneyuResult(statistic=377.5, pvalue=0.41594007137199945)
```

In [42]:
```
mannwhitneyu(non_primed_actual['q4'], primed_actual['q4'])
```

Out[42]:
```
MannwhitneyuResult(statistic=286.0, pvalue=0.037232677440017195)
```

In [43]:
```
mannwhitneyu(non_primed_actual['q5'], primed_actual['q5'])
```

Out[43]:
```
MannwhitneyuResult(statistic=326.0, pvalue=0.13971180824025869)
```

In [44]:
```
mannwhitneyu(non_primed_actual['q6'], primed_actual['q6'])
```

Out[44]:
```
MannwhitneyuResult(statistic=312.0, pvalue=0.073095344044228835)
```

Question 4 responses betwee groups are statistically different. Question 4 is "When considering the possible levels of achievement for each credit, I began with the description for “improved” and then moved on to “enhanced”, “superior”, and “conserving”, in that order."

In [ ]:
```

```