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ABSTRACT

Many young democracies are characterized by the proliferation of political dynasties, i.e. elected politicians from the same clan spanning across time and across different elected positions. In the Philippines, there has been growing concern that political dynasties are on the rise, as more elected officials hail from political clans. Lack of information on political dynasties could be a potential reason behind this. Using a randomized control trial framework, this paper seeks to evaluate the impact of young voters' access to information on political dynasties (i.e. the socio-economic correlates of this phenomenon) vis-à-vis their voting choices for top local government positions and the Senate in the Philippines. The two main delivery systems for the information are: a) a five-minute cartoon highlighting the main findings of a study on political dynasties in the Philippine Congress; and b) a lecture by one of the co-authors of that study. This paper finds some evidence that the lecture and the cartoon had an effect in terms of reducing votes for dynasties. Second, the lecture has a much greater impact than the cartoon in terms of its estimated effect on the voting preference of the participants. The study findings suggest that access to information on political dynasties has potentially large effects on electoral outcomes, should the result hold for a large share of young voters. Based on a simplified illustration, the lecture on political dynasties could potentially result in about less than half a million fewer votes for dynastic politicians for the top senate spot; and up to five million less votes for dynastic senatorial candidates for the 12 slots. Again, it should be emphasized that this is a mere illustration and not a projection of effects on actual elections. Nevertheless, the results are compelling in their potential magnitude, should these estimates hold true for the larger youth population.

*The views expressed in this paper do not necessarily represent those of the Asian Institute of Management and Saint Louis University. Questions and comments on this draft should be addressed to Tristan Canare (tcanare@aim.edu).

INTRODUCTION

Political dynasties are elected politicians from the same clan spanning across time and across different elected positions. They have become a key feature in many democracies. In the Philippines, there has been growing concern that political dynasties are on the rise, as more elected officials hail from political clans. In the Philippine midterm elections, for example, the son of a senator, a daughter of the sitting Vice President, and a cousin of the sitting President all ran for a senate seat. In addition, some local governments are dominated by specific political clans. In the province of Maguindanao, for instance, 72 members of the Ampatuan clan ran for various local government positions; and in 2010, 42 Ampatuans were elected into various positions. An ongoing study by the AIM Policy Center finds that many of the dynasties (expressed as a share of total positions in the province) could be found in the Northern-most and Southern-most provinces of the Philippines. In Maguindanao, about 70 percent of the top local government positions in 2010 were encumbered by members of different dynastic clans, followed closely by Apayao in the North (over 60 percent) and Sulu in the South (almost 60 percent) (see figure 1).

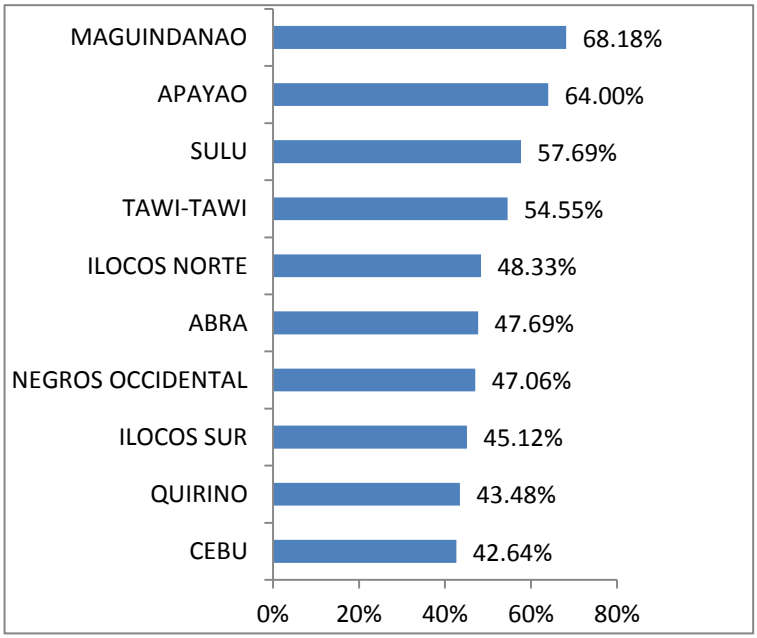
Motivations for countering political dynasties vary. Some argue that political dynasties run counter to the Philippine Constitution, which contains a clause against dynasties in elected office, but lacks an enabling law to give it teeth. Still others warn against the monopolization of political power, with pernicious side effects ranging from promoting patronage-based and traditional politics, consolidating the monopoly of power over politics and the economy among a few families, to crowding out other potential leaders of less well-known pedigree but of equal if not greater capabilities. Finally, a growing number of analysts also point to the weakening checks-and-balances in public administration, should family members from the same clan encumber key positions in local and central governments.

A recent study of the 15th Philippine Congress by Mendoza, Beja, Venida and Yap (2012) (or from here on MBVY, 2012) found evidence that political dynasties are mostly located in areas with higher poverty and lower per capita income; and that dynastic politicians are richer and win by larger margins than their non-dynastic counterparts. While their findings could not yet establish the direction of causality between dynasties and poverty, the two competing

explanations—that dynasties cause poverty, or that the poor tend to select dynasties—do raise issues on the over-all inclusiveness of the Philippine democracy.

Figure 1. Philippine Provinces with Largest Dynastic Shares[1]

in Top Provincial Positions (2010)



Source: AIM Policy Center.

Voters' lack of information could be a key factor behind the abovementioned trends. In principle, better informed voters helps to strengthen democracies. International empirical evidence suggests that voters' access to information about the candidates and about the political landscape does alter their voting behavior, usually in favor of stronger social and economic performance and better governance.

This study seeks to contribute to the so far scant literature on this topic, by analyzing the impact of providing young voters with information about the socio-economic links of dynasties

[1] The "dynastic share" indicator is the proportion of the number of elective posts under analysis here (i.e., Governor, Vice-Governor, Congressmen, Provincial Board Member, Mayor and Vice-Mayor) held by dynastic elective officials in the province in 2010, where a dynastic elective official is defined as someone who has a relative occupying an elective post (among the posts enumerated earlier) within the province in 2007 or 2010. The identification of dynastic elective officials was done through last name matching.

in the Philippines on the their voting patterns. In particular, the study empirically examines whether young voters would select fewer dynastic candidates after they were exposed to the information.

Another specific objective of this study is to evaluate the potential impact, if any, of two ways by which this information is delivered. The first is a five-minute cartoon audio-visual presentation summarizing the main findings of MBVY (2012), and the second is a thirty-minute lecture by the lead author of said study. The potential differential impact of physical vs. digital delivery of information is important given the less-costly and often more wide-reaching digital platforms available to academics and advocates, such as those comprising social media.[2] On the other hand, a lecture is more expensive because travel and other costs to deliver the lecture will be large if the entire youth population is to be reached. Although a lecture can be recorded and disseminated through the internet and social media, a face to face interaction with the chance to ask questions can be argued to induce information to be absorbed more by the audience.

In addition, the focus of this study on young voters is motivated by their potentially growing role in Philippine politics. The Philippine youth population (aged 15 to 24 years old) is presently about 18 million. Of this number, an estimated 11 million are registered voters.[3] As the Philippines begins to approach its youth bulge (i.e. the largest share of youth in the total population throughout Philippine history) some 25 to 30 years from now, young voters will begin to carry greater weight in determining electoral outcomes. At its peak, there will be about 24 million[4] youth in the Philippines, and about 15 million of them could be registered voters.[5]

[2] Internet is utilized by a significant proportion of Filipinos based on the Digital Life Survey by TNS in 2011 and 2012. The said survey noted an increase in the proportion of Filipinos who use internet, from 36% in 2011 to 45% in 2012, with the internet overtaking radio as the second most-widely used medium in the Philippines last year (Philippine Daily Inquirer, 31 Jan. 2012).

[3] This number was estimated as follows. First, the ratio of the total number of registered voters (48.3 million) to the total voting age population (55.5 million) for the entire Philippines was computed. Then, this ratio (87 percent) was multiplied by the estimated population of 18 to 24 year olds in the Philippines (12.2 million). The 18 to 24 population was estimated using the 15 to 19 and 20 to 24 population census data. Assuming that in these age brackets, there is equal number of people of each age (i.e. the population of 15, 16, 17 and so on year olds are the same), the 18 to 24 population was estimated. Data on population by age group came from the National Statistics Office; data on number of registered voters came from the National Statistical Coordination Board. These data are for 2010.

[4] This is based on projections by the Population Division, United Nations Department of Economic and Social Affairs (2010).

[5] We simply extract the same share of registered voters to the total number of youth (11/18=60 percent) to arrive at a first-pass guesstimate.

Studying youth voting patterns could provide important insights as to what types of changes in leadership may be possible in the coming years.

This paper finds evidence that the cartoon and the lecture had an effect in terms of reducing votes for dynasties – with the latter having a more pronounced impact. The results depend on the method used in computing for the impact as well as on the dynastic outcome indicator. In general, the initial impact appears moderate – because of its magnitude and since it appears only on certain outcome indicators and only on certain methods of impact computation. However, with such a short period of exposure to treatment (i.e. a five-minute cartoon and 30-minute lecture), that there was any impact is still noteworthy (we discussed in the Conclusion section why it would be methodologically unfeasible to significantly prolong the exposure time to the treatments).

Indeed, a simple illustration elaborated in the concluding section of this study helps to emphasize the possible implications of these findings on election outcomes. If we use the estimates in this study on the impact of the lecture on the top Senator and top 12 Senators being dynastic, and consider about 6 million voters in the age bracket of the student respondents, then the results could potentially translate to about less than half a million fewer votes for the top senate spot and up to about 5 million less votes for dynastic candidates in the senate top 12. This is a mere illustration and not a projection of effects on the actual election. Nevertheless, the results are compelling in their potential magnitude, should these estimates hold true for the larger youth population.

Before proceeding, the authors wish to emphasize that they do not take any normative positions on the phenomenon of political dynasties. The findings herein should be considered as evidence on what may influence voting patterns as regards better access to information on the political landscape.

In what follows, Section 1 reviews literature on related topics followed by a discussion of the methodology in Section 2. Section 3 outlines the results and a brief synthesis in Section 4 concludes the paper.

I. REVIEW OF LITERATURE

According to rational choice theory, an individual's decision on whether to engage in a political action depends on the perceived benefits and costs from his or her participation (Bailard, 2012). In the case of voting, the decision involves a two-stage decision process: a first stage which determines whether to vote or not, and a second stage on who to vote. The first part has been studied extensively under the rational theory of voter behavior (e.g. Silberman and Durden, 1975; Settle and Abrams, 1976; Barzel and Silberberg, 1973; Tollison et al, 1975; Tollison and Willett, 1973). On the other hand, the second part has only been recently studied, and most research in this area focus on the effect of information on candidate choice.

Asymmetric information is central to many behavioral studies in microeconomics, with the widely studied principal-agent problem being one of the earliest examples. Severe information asymmetry generally characterizes electoral contests. It is not uncommon that politicians know much more about the socio-economic and political landscape, that the electorate does not. The electorate also typically has access to only partial information about the candidates. Candidates may use this informational advantage to sway the voters in their favor (Ferraz and Finan, 2007). Information available to candidates and voters can be asymmetrical because it may be costly for the voters to obtain information, and/or the candidates have better access to it (Baron, 1994; Grossman and Helpman, 1996).

Access to information can help voters improve their decision-making on who to vote by enlightening them as to which candidate's political platform and/or performance is better aligned with their objectives. In applying this framework to this study, this research seeks to empirically assess if providing information to young voters about the relationship between political dynasties and some socio-economic indicators will affect their choice of candidates to vote for, i.e. their choice of dynastic versus non-dynastic candidates.

Previous studies concluded that voters can indeed be influenced by information dissemination and subtle political messages regardless of the medium through which it was delivered. In Brazil, Ferraz and Finan (2007) analyzed the effect of publishing audit reports on Brazilian municipal expenditures on the probability of re-election of the incumbent mayor. Results show that an additional corruption reported reduced the likelihood that an incumbent mayor will be re-elected by about 20 percent (ibid, p. 4). Furthermore, the effect is more

pronounced in municipalities with radio stations, possibly highlighting the effect of more widespread information dissemination.

Similarly, Banerjee et al. (2011) conducted a related study in India, wherein slum dwellers were randomly provided access to newspaper report cards on the performance of incumbent politicians in their area. The results show that the treatment group (i.e. those who were shown the scorecards) were more likely to vote in the election; and they were more likely to vote for incumbents who spend more time in slum areas.

Previous studies also found that voter information not only affects who they vote but also the decision whether to vote or not. Larcinese (2007) concluded that political knowledge has significant influence on the likelihood of voting. Similarly, Settle and Abrams (1976), studied the effect of information about the candidates on voter turnout, and found a positive relationship between the two variables.

Related to this, Bond et al. (2012) performed a randomized control trial of Facebook users aged at least 18 years old in the United States during the 2010 elections. The study divided the subjects into three groups. The first group received a Facebook message 'Today is Election Day', including information on polling precincts and an 'I Voted' button that can be 'Liked'. The second group received the same message, information, and button, but also showed six Facebook friends who already clicked the 'I Voted' button. And the third group served as the control group; they did not receive anything. The researchers found that those in the second group were more likely to vote than the other two groups. The authors also calculated that this experiment generated 340,000 additional votes during that year's Congressional election (ibid, p. 297).

The impact of access to information using the internet on voting outcomes was also examined in several studies. Tolbert and McNeal (2001) applied logistic regression analysis to data from the National Election Studies (NES), a random survey conducted every two years, in the United States. Results showed that use of the internet to access political information appeared to be positively and significantly associated with probability of voting in the 1996 and 2000 elections after controlling for partisanship, income, and demographic factors such as age and ethnicity. This implies possible potential of the internet to mobilize electoral participation.

Finally, Reuter and Szakonyi (2012) applied logistic regression analysis and found that access to Facebook and access to Twitter are both positively and significantly associated with the probability of perception of fraud in the 2011 Russian Parliamentary elections in regions with

moderate and relatively high press freedom. Access to local social networking sites appear to be not significantly related to perception of fraud. The authors attributed the observed results to the politicized nature of Facebook and Twitter in contrast to local networking sites where the government imposes higher level of censorship. The authors also noted the presence of opposition elites in Facebook and Twitter who have large number of followers capable of producing informational contagion. The significance of the results only on regions with relatively high press freedom was attributed by the authors to the availability of information in these areas which can then be injected to the social media.

II. METHODOLOGY

The subjects of the experiment were undergraduate students of the business and accountancy school of a private university in northern Philippines. From a student population of more than 8,300 students, 1,200 were randomly selected to participate in the study – 400 each for the control, cartoon and lecture groups. The students were not informed beforehand whether they belong to the treatment or to the control group; they were only asked to come to a particular place and time for a certain study. The students were told that participation is entirely voluntary and will not affect their academic standing, and any information they give will be kept confidential.

From the initial 1,200 students asked to participate in the study conducted last 12 January 2013, 196 students joined. Seventy-three belonged to the control group, 71 belonged to treatment group 1 (cartoon), and 52 belonged to treatment group 2 (lecture).[6] All three groups were asked to fill out the mock ballot in the morning. From a list of candidates provided by the Commission on Elections, the students were asked to list the following if elections were held at the time of the survey: a) the twelve senatorial candidates they will vote for in order of preference; b) the candidates for governor, vice-governor, mayor, vice-mayor and representative they will vote for from their home province, city/municipality and district. In the afternoon, all three groups were asked to return to fill out the same mock ballot. However, in the afternoon, prior to filling out the survey, each group followed this protocol:

[6] The turnout, while low, is still typically higher than a snowball sampling method. The 196 students are those who participated both in the baseline and in the follow-up surveys (i.e. it is already net of attrition). Attrition rate for the follow-up survey was 24 percent (63 students who showed up in the baseline survey did not show up in the follow up survey).

- Treatment group 1: watched an audio-visual cartoon on the socio-economic links of political dynasties in the Philippines;[7]
- Treatment group 2: heard a lecture synthesizing the same study;
- Control group: Did not see the cartoon nor hear the lecture about political dynasties. However, they heard a lecture on a random topic not related to politics to control for the fact that the two treatment groups were exposed to a presentation.[8]

To measure the impact of each of the two treatments on the voting pattern of the participants, two methodologies were used. One is the difference-in-difference (DID) method and the other is post-treatment comparison of means of outcome indicators between the control group and the treatment groups.[9] The main difference between these two methods is that the former makes use of baseline data, while the latter directly compares outcome indicators for the treatment and control groups after the treatment has been applied. Computing for the DID is further divided into two methods – one using OLS and another using fixed effects regression. The latter takes advantage of the rare fact that the survey generated a panel data of individual-level voting preferences. While these two methods will arrive at the same DID figures, there can be differences in significance levels because fixed effects estimation reduces the noise in the data. As advised by Baker (2000, p. 6), there is no perfect method of impact evaluation, supporting the use of more than one method if possible.

Aside from analyzing the impact of the two treatments on the voting choice of the participants, the differences in impact between the lecture and the cartoon were also studied. This was done by applying the same comparison of means and DID methodologies on the two treatment groups, with the cartoon group acting as the 'control'. The purpose of this is to determine the difference in impact of these two treatments, if any. A significant impact of the lecture on an outcome indicator; and an insignificant impact of the cartoon on the same outcome indicator does not necessarily mean that the impact of the two treatments are significantly different, similar to what was argued by Gelman and Stern (2006).

[7] Annex 1 in this paper contains photographs of the actual experiment.
[8] The control group heard a lecture on the economic effect of a local festival at a nearby city.
[9] Further elaboration on these two approaches is contained in annex 2 of this paper.

Definitions of Political Dynasty

No information was provided on the candidates' status as dynastic or non-dynastic politicians. Instead, the information provided to the treatment groups focused on the broad connections between political dynasties and socio-economic indicators, including average per capita income and poverty. In analyzing the resulting choices made in the mock ballot, the following definitions of dynastic politicians were used in the study:

1. Senator

Senate Dynasty 1 – A senatorial candidate is considered dynastic if his/her surname or middle name matches with either surname or middle name of any person previously elected to a national position (i.e. president, vice-president and senator).

Senate Dynasty 2 – A senatorial candidate is considered dynastic if he/she is

a) Classified as Senate Dynasty 1 **or**
b) His/her surname or middle name matches with either surname or middle name of any person previously elected to any local government position in the candidate's home province in any of the past three terms (note: home province/municipality/city was based on the address and birthplace declared by the candidate in his/her certificate of candidacy).

2. Governor and Vice-Governor

Governor/Vice-Governor Dynasty – A gubernatorial or vice-gubernatorial candidate is considered dynastic if his/her surname or middle name matches with either surname or middle name of any person previously elected to any local government position (provincial-level, municipal-level or district-level) in the candidate's province in any of the past three terms.

3. Mayor and Vice Mayor

Mayor/Vice-Mayor Dynasty1 – A mayoral or vice-mayoral candidate is considered dynastic if his/her surname or middle name matches with either surname or middle name of any person previously elected to any local government position (provincial-level, municipal-level or district-level) in the candidate's province in any of the past three terms.

Mayor/Vice-Mayor Dynasty2 – A mayoral or vice-mayoral candidate is considered dynastic if

a.) His/her surname or middle name matches with either surname or middle name of any person previously elected to any provincial-level position (governor, vice-governor,

board member) or district-level position (representative) in the candidate's province in any of the past three terms **or**

b.) His/her surname or middle name matches with either surname or middle name of any person previously elected to any municipal/city-level position in the candidate's municipality/city in any of the past three terms.

4. Representative

Representative Dynasty – A candidate for representative is considered dynastic if his/her surname or middle name matches with either surname or middle name of any person previously elected to any local government position (provincial-level, municipal-level and district-level) in the candidate's province in any of the past three terms.

Outcome Indicators

Based on the abovementioned definitions, the following voting outcome indicators were used to assess the impact of the treatments on the voting patterns of the participants. The indicators help to highlight different possible outcomes on broader dynastic patterns. Over all, thirty-two separate indicators were created, highlighting outcomes on dynasties at the top, middle, and bottom of the Senate race, dynasties at the national (Senate) and local (local government) levels, and dynasties at the top (Governor) and (near) bottom of the local government infrastructure. The use of these different indicators could provide a sharper picture of where exactly the changes in voting patterns could be most pronounced, and what over-all effects it may have on the voting outcomes. For instance, the effects on voting patterns could be that only Senate dynasties (and not local government dynasties) could experience a drop in votes. Or it is possible that the dynasties presently ranking very high in the polls may lose some of this lead but still make it into the top twelve winning slots. Finally it is also possible that dynasties running for the Senate who are presently on the margin of the top twelve based on polls might actually lose votes, even as those on the top are unaffected. These different combinations of results could in turn help clarify how young people on average may be adjusting the way they vote.

Table 1. Outcome Indicators of Interest

Variable	Description
SENATORS	
Sen_dyn1_sum	Number of senatorial candidates selected who are classified as 'senate dynasty 1'
Sen_dyn2_sum	Number of senatorial candidates selected who are classified as 'senate dynasty 2'
Topsen_dyn1	Top senator selected is classified as 'senate dynasty 1'
Topsen_dyn2	Top senator selected is classified as 'senate dynasty 2'
Top3_sen_dyn1	Number of senatorial candidates selected in the top 3 who are classified as 'senate dynasty 1'
Top3_sen_dyn2	Number of senatorial candidates selected in the top 3 who are classified as 'senate dynasty 2'
Top4to6_sen_dyn1	Number of senatorial candidates selected in the top 4 to 6 who are classified as 'senate dynasty 1'
Top4to6_sen_dyn2	Number of senatorial candidates selected in the top 4 to 6 who are classified as 'senate dynasty 2'
Top7to9_sen_dyn1	Number of senatorial candidates selected in the top 7 to 9 who are classified as 'senate dynasty 1'
Top7to9_sen_dyn2	Number of senatorial candidates selected in the top 7 to 9 who are classified as 'senate dynasty 2'
T10to12_sen_dyn1	Number of senatorial candidates selected in the top 10 to 12 who are classified as 'senate dynasty 1'
T10to12_sen_dyn2	Number of senatorial candidates selected in the top 10 to 12 who are classified as 'senate dynasty 2'
Top6_sen_dyn1	Number of senatorial candidates selected in the top 6 who are classified as 'senate dynasty 1'
Top6_sen_dyn2	Number of senatorial candidates selected in the top 6 who are classified as 'senate dynasty 2'
Bot6_sen_dyn1	Number of senatorial candidates selected in the bottom 6 of the top 12 who are classified as 'senate dynasty 1'
Bot6_sen_dyn2	Number of senatorial candidates selected in the bottom 6 of the top 12 who are classified as 'senate dynasty 2'
LOCAL GOVERNMENT OFFICIALS	
Gov_dyn	Gubernatorial candidate selected is classified as dynastic
Vgov_dyn	Vice-gubernatorial candidate selected is classified as dynastic

Prov_dyn	Number of dynastic candidates selected for provincial-level positions (i.e. governor and vice-governor)
May_dyn1	Mayoral candidate selected is classified as 'mayor/vice-mayor dynasty 1'
Vmay_dyn1	Vice-mayoral candidate selected is classified as 'mayor/vice-mayor dynasty 1'
May_dyn2	Mayoral candidate selected is classified as 'mayor/vice-mayor dynasty 2'
Vmay_dyn2	Vice-mayoral candidate selected is classified as 'mayor/vice-mayor dynasty 2'
Mun_dyn1	Number of dynastic candidates selected for municipal/city-level positions (i.e. mayor and vice-mayor) using 'mayor/vice-mayor dynasty 1' definition
Mun_dyn2	Number of dynastic candidates selected for municipal/city-level positions (i.e. mayor and vice-mayor) using 'mayor/vice-mayor dynasty 2' definition
Rep_dyn	Candidate for representative selected is classified as dynastic
Local_dyn_m1	Number of dynastic candidates selected for local-level positions (governor, vice-governor, mayor, vice-mayor, representative) using the 'mayor/vice-mayor dynasty 1' definition for mayoral and vice-mayoral candidates
Local_dyn_m2	Number of dynastic candidates selected for local-level positions (governor, vice-governor, mayor, vice-mayor, representative) using the 'mayor/vice-mayor dynasty 2' definition for mayoral and vice-mayoral candidates
ALL POSITIONS	
Total_dyn_s1m1	Number of dynastic candidates selected for all positions (using the 'senate dynasty 1' definition for senatorial candidates and the 'mayor/vice-mayor dynasty 1' definition for mayoral and vice-mayoral candidates)
Total_dyn_s2m1	Number of dynastic candidates selected for all positions (using the 'senate dynasty 2' definition for senatorial candidates and the 'mayor/vice-mayor dynasty 1' definition for mayoral and vice-mayoral candidates)
Total_dyn_s1m2	Number of dynastic candidates selected for all positions (using the 'senate dynasty 1' definition for senatorial candidates and the 'mayor/vice-mayor dynasty 2' definition for mayoral and vice-mayoral candidates)
Total_dyn_s2m2	Number of dynastic candidates selected for all positions (using the 'senate dynasty 2' definition for senatorial candidates and the 'mayor/vice-mayor dynasty 2' definition for mayoral and vice-mayoral candidates)

Source: Authors' elaboration.

Randomization Check

Table 2 shows a randomization check. It reports comparisons of means of different available socio-demographic variables that may affect voting patterns across the different groups. Panel A tests for significant differences between the control and the treatment group 1 (cartoon), while

Panel B compares the control and the treatment group 2 (lecture). Panel C shows comparison between the two treatment groups. Generally, balance is observed across the three groups. None of the tested variables are systematically different across the three groups at 5% significance level.

Table 2. Randomization Check

	Panel A: Comparison Between Treatment 1 and Control			Panel B: Comparison Between Treatment 2 and Control			Panel C: Comparison Between Treatment 1 and Treatment 2		
	Difference	SE	P-Value	Difference	SE	P-Value	Difference	SE	P-Value
Age	0.27	0.22	0.2179	0.39	0.26	0.1265	0.12	0.24	0.6102
Sex (Male=1)	-0.06	0.07	0.3837	-0.01	0.07	0.9351	0.06	0.08	0.4785
Allowance (in PhP)	142.59	127.45	0.2651	135.63	144.74	0.3506	-6.96	95.70	0.9421
Average Grade (Scale of 0 to 100)	1.11	0.59	0.0610	1.20	0.067	0.0733	0.10	0.69	0.8885
Number of Relatives Abroad	-1.21	1.36	0.3741	0.94	1.27	0.4630	2.15	1.42	0.1334
Number of Hours Reading News in the Internet per Day	0.16	0.11	0.1659	0.29	0.13	0.0888	.07	0.11	0.5150
Number of Relatives who are Politicians	0.57	0.59	0.3388	-0.10	0.81	0.8989	-0.67	0.54	0.2184

Notes:
1. In Panel A, control is the minuend and treatment 1 is the subtrahend. In Panel B, control is the minuend and treatment 2 is the subtrahend. In Panel C, treatment 1 is the minuend and treatment 2 is the subtrahend.
2. P-value is for the alternative hypothesis that the difference is not equal to zero.

Randomization could also be verified by comparing the baseline difference of each outcome indicator across the control and treatment groups. One way to do this is by checking if β_1 in Equation 2 in Annex 2 is statistically insignificant. OLS regressions were performed on equation 2 with each of the outcome indicators serving as a dependent variable. An insignificant β_1 means that there is no systematic difference in voting preference between the treatment and control groups at baseline.[10] Table 3 shows that there is no systematic difference in any of the outcome indicators at baseline when comparing the cartoon group and the control, and when

[10] For each outcome indicator, three regressions were performed. One is comparing control versus treatment 1; the second is comparing control versus treatment 2; and third is comparing treatment 1 and treatment 2, with treatment 1 acting as the 'control' group.

comparing the cartoon group and the lecture group. When comparing the lecture group with the control, only two of the 32 outcome indicators have statistically significant difference at baseline.

Table 3. Baseline Comparison of Outcome Indicators

Outcome Indicator	Treatment 1 (Cartoon) vs. Control Coef. (Std. Err.)	Treatment 2 (Lecture) vs. Control Coef. (Std. Err.)	Treatment 1 vs. Treatment 2 Coef. (Std. Err.)
Sen_dyn1_sum	0.294 (0.289)	0.247 (0.354)	-0.047 (0.326)
Sen_dyn2_sum	0.342 (0.283)	0.068 (0.378)	-0.274 (0.328)
Topsen_dyn1	-0.075 (0.069)	-0.072 (0.076)	0.004 (0.082)
Topsen_dyn2	-0.028 (0.022)	-0.077** (0.037)	-0.049 (0.046)
Top3_sen_dyn1	-0.095 (0.143)	-0.060 (0.158)	0.035 (0.170)
Top3_sen_dyn2	-0.090 (0.081)	-0.077 (0.088)	0.012 (0.105)
Top4to6_sen_dyn1	0.064 (0.146)	0.027 (0.160)	-0.037 (0.159)
Top4to6_sen_dyn2	0.112 (0.104)	-0.051 (0.127)	-0.163 (0.117)
Top7to9_sen_dyn1	0.226 (0.140)	0.350** (0.163)	0.124 (0.162)
Top7to9_sen_dyn2	0.176 (0.132)	0.171 (0.158)	-0.005 (0.142)
T10to12_sen_dyn1	0.098 (0.160)	-0.070 (0.168)	-0.168 (0.175)
T10to12_sen_dyn2	0.144 (0.151)	0.025 (0.172)	-0.119 (0.170)
Top6_sen_dyn1	-0.030 (0.198)	-0.033 (0.224)	-0.003 (0.228)
Top6_sen_dyn2	0.023 (0.132)	-0.128 (0.170)	-0.151 (0.170)
Bot6_sen_dyn1	0.325 (0.235)	0.280 (0.256)	-0.044 (0.253)
Bot6_sen_dyn2	0.320 (0.227)	0.196 (0.281)	-0.124 (0.241)
Gov_dyn	-0.025 (0.082)	-0.020 (0.089)	0.005 (0.091)

Vgov_dyn	-0.031 (0.055)	0.052 (0.055)	0.083 (0.059)
Prov_dyn	-0.056 (0.106)	0.032 (0.105)	0.088 (0.118)
May_dyn1	0.005 (0.079)	0.021 (0.086)	0.016 (0.086)
Vmay_dyn1	-0.041 (0.084)	-0.053 (0.091)	-0.012 (0.092)
May_dyn2	0.042 (0.084)	-0.032 (0.091)	-0.074 (0.092)
Vmay_dyn2	-0.018 (0.081)	-0.043 (0.087)	-0.025 (0.088)
Mun_dyn1	-0.036 (0.138)	-0.032 (0.150)	0.004 (0.153)
Mun_dyn2	0.024 (0.138)	-0.075 (0.149)	-0.099 (0.160)
Rep_dyn	-0.095 (0.082)	0.048 (0.087)	0.143 (0.089)
Local_dyn_m1	-0.187 (0.274)	0.048 (0.288)	0.235 (0.302)
Local_dyn_m2	-0.126 (0.261)	0.006 (0.274)	0.132 (0.294)
Total_dyn_s1m1	0.107 (0.439)	0.295 (0.503)	0.188 (0.485)
Total_dyn_s2m1	0.155 (0.427)	0.115 (0.527)	-0.040 (0.496)
Total_dyn_s1m2	0.168 (0.432)	0.253 (0.500)	0.085 (0.488)
Total_dyn_s2m2	0.216 (0.420)	0.073 (0.522)	-0.142 (0.496)

* significant at 10%; ** significant at 5%; ***significant at 1%.

III. ANALYSIS OF EMPIRICAL RESULTS

Comparison of Means

Comparison of means shows several outcome indicators that are significantly different between the control and treatment groups. For the group that saw the audio-visual cartoon, the outcome indicators *Topsen_dyn2* and *Top3_sen_dyn2* are significant at 5% level of significance. The proportion of participants in the cartoon group who chose a dynastic candidate for the top senatorial post is lower by 4.2 percentage points than that of the control group. Similarly, members of the cartoon group selected an average 0.15 less dynastic candidates[11] for their top three senators.

Aside from these two outcome indicators, only *Topsen_dyn1* is significant in the cartoon group (but only at 10% level), suggesting that the cartoon may have an impact on the students' choice of the top senate posts. However, neither the middle to lower senate positions nor local government posts seem to be affected by exposure to the cartoon. Table 4 synthesizes the results comparing the means of outcome indicators for the cartoon treatment group and the control group. Table 5 synthesizes the results comparing the means of outcome indicators for the lecture treatment group and the control group.[12]

The lecture produced a much greater impact in the voting behavior of the students in terms of selecting dynasties. There are two outcome indicators that are significantly different in the lecture group from the control group at 1% level – *Topsen_dyn2* and *Top3_sen_dyn2*. The proportion of participants in the lecture group who chose a dynastic candidate for the top senatorial post is lower by 15.4 percentage points than that of the control group. Similarly, each member of the lecture group selected, on average, 0.27 fewer dynastic candidates[13] in their top 3 senatorial choices compared to the control group. These two outcome indicators are also the same variables that are significant in the cartoon group, suggesting that the impact of the information is strongest in the top senate posts.

[11] For clarity, this is neither a proportion nor a percentage decrease. This refers to 0.15 "candidates". The control group, on average, selected 2.849 dynastic candidates in their top 3; the cartoon group selected 2.704 (see table 4). Alternatively, it can be said that members of the cartoon group, on average, selected 5.1 percent fewer dynastic candidates in the top 3 (computed as [2.704 – 2.849]/2.849) than members of the control group. Conversely, it can be stated that members of the control group, on average, chose 5.4 percent more dynastic candidates in the top 3 (computed as [2.849 – 2.704]/2.704) compared to members of the cartoon group.

[12] Annex 3 in this paper presents these results in figure format.

[13] The 0.27 fewer dynastic candidates can be clarified similar to the discussion in footnote 11.

The means of the outcome indicators *Topsen_dyn1*, *Top6_sen_dyn2*, *Bot6_sen_dyn1* and *Sen_dyn2_sum* were also significantly lower in the lecture group than in the control group, but only at 5% level. The means of all four outcome indicators that measure the total number of dynastic candidates selected for all positions are also significant lower in the lecture group than in the control, albeit weakly at only 10% level. All these suggest that the impact of the lecture was limited only to the senate, with the strongest impact being seen in the top 3 senate positions. Similar to the cartoon group, all local position outcome indicators are insignificant in the lecture group.

Table 4. Comparison of Means between Control and Cartoon Treatment Group

Outcome Indicator	Control Group Mean (Std. Err.)	Treatment Group Mean (Std. Err.)	Difference [Treatment - Control] (Std. Err.)	t-stat	p-value
Sen_dyn1_sum	6.986 (0.220)	6.915 (0.195)	-0.071 (0.295)	-0.2401	0.4053
Sen_dyn2_sum	9.712 (0.229)	9.817 (0.162)	0.105 (0.282)	0.3712	0.6445
Topsen_dyn1	**0.822 (0.045)**	**0.732 (0.053)**	**-0.090* (0.069)**	**-1.2904**	**0.0995**
Topsen_dyn2	**1.000 (0.000)**	**0.958 (0.024)**	**-0.042** (0.024)**	**-1.7821**	**0.0384**
Top3_sen_dyn1	2.123 (0.089)	2.014 (0.109)	-0.109 (0.140)	-0.7773	0.2191
Top3_sen_dyn2	**2.849 (0.042)**	**2.704 (0.071)**	**-0.145** (0.082)**	**-1.7755**	**0.0390**
Top4to6_sen_dyn1	1.699 (0.110)	1.845 (0.107)	0.146 (0.154)	0.9531	0.8289
Top4to6_sen_dyn2	2.493 (0.083)	2.577 (0.069)	0.084 (0.108)	0.7810	0.7819
Top7to9_sen_dyn1	1.712 (0.100)	1.592 (0.097)	-0.121 (0.140)	-0.8630	0.1948
Top7to9_sen_dyn2	2.205 (0.101)	2.423 (0.074)	0.217 (0.126)	1.7216	0.9563
T10to12_sen_dyn1	1.452 (0.109)	1.465 (0.111)	0.013 (0.156)	0.0818	0.5326
T10to12_sen_dyn2	2.164 (0.105)	2.113 (0.103)	-0.052 (0.147)	-0.3507	0.3632
Top6_sen_dyn1	3.822 (0.141)	3.859 (0.154)	0.037 (0.209)	0.1782	0.5706
Top6_sen_dyn2	5.342 (0.096)	5.282 (0.099)	-0.061 (0.138)	-0.4416	0.3297
Bot6_sen_dyn1	3.164 (0.162)	3.056 (0.163)	-0.108 (0.230)	-0.4703	0.3194

Bot6_sen_dyn2	4.370 (0.179)	4.535 (0.128)	0.165 (0.221)	0.7466	0.7717
Gov_dyn	0.630 (0.057)	0.577 (0.059)	-0.053 (0.082)	-0.6426	0.2608
Vgov_dyn	0.890 (0.037)	0.859 (0.042)	-0.031 (0.055)	-0.5637	0.2869
Prov_dyn	1.521 (0.068)	1.437 (0.082)	-0.084 (0.106)	-0.7900	0.2154
May_dyn1	0.671 (0.055)	0.662 (0.057)	-0.009 (0.079)	-0.1170	0.4535
Vmay_dyn1	0.534 (0.059)	0.507 (0.060)	-0.027 (0.084)	-0.3245	0.3730
May_dyn2	0.507 (0.059)	0.535 (0.060)	0.028 (0.084)	0.3384	0.6322
Vmay_dyn2	0.370 (0.057)	0.380 (0.058)	0.010 (0.081)	0.1282	0.5509
Mun_dyn1	1.205 (0.095)	1.169 (0.100)	-0.036 (0.138)	-0.2635	0.3963
Mun_dyn2	0.877 (0.091)	0.915 (0.104)	0.039 (0.138)	0.2809	0.6104
Rep_dyn	0.658 (0.056)	0.577 (0.059)	-0.080 (0.081)	-0.9852	0.1631
Local_dyn_m1	3.384 (0.186)	3.183 (0.204)	-0.200 (0.275)	-0.7277	0.2340
Local_dyn_m2	3.055 (0.173)	2.930 (0.198)	-0.125 (0.263)	-0.4768	0.3171
Total_dyn_s1m1	10.370 (0.312)	10.099 (0.313)	-0.271 (0.443)	-0.6129	0.2705
Total_dyn_s2m1	13.096 (0.314)	13.000 (0.284)	-0.096 (0.424)	-0.2262	0.4107
Total_dyn_s1m2	10.041 (0.306)	9.845 (0.314)	-0.196 (0.438)	-0.4476	0.3276
Total_dyn_s2m2	12.767 (0.307)	12.746 (0.284)	-0.021 (0.419)	-0.0493	0.4804

Note: H_0: difference = 0; H_a= difference < 0.

* significant at 10%; ** significant at 5%; ***significant at 1%.

Table 5. Comparison of Means between Control and Lecture Treatment Group

Outcome Indicator	**Control Group Mean (Std. Err.)**	**Treatment Group Mean (Std. Err.)**	**Difference [Treatment - Control] (Std. Err.)**	**t-stat**	**p-value**
Sen_dyn1_sum	**6.986 (0.220)**	**6.423 (0.323)**	**-0.563* (0.377)**	**-1.4929**	**0.0690**
Sen_dyn2_sum	**9.712 (0.229)**	**9.000 (0.367)**	**-0.712** (0.412)**	**-1.7304**	**0.0430**
Topsen_dyn1	**0.822 (0.045)**	**0.654 (0.067)**	**-0.168** (0.078)**	**-2.1677**	**0.0161**

Topsen_dyn2	**1.000 (0.000)**	**0.846 (0.051)**	**-0.154*** (0.043)**	**-3.6139**	**0.0002**
Top3_sen_dyn1	2.123 (0.089)	1.923 (0.137)	-0.200 (0.157)	-1.2786	0.1017
Top3_sen_dyn2	**2.849 (0.042)**	**2.577 (0.096)**	**-0.272*** (0.095)**	**-2.8536**	**0.0025**
Top4to6_sen_dyn1	1.699 (0.110)	1.827 (0.128)	0.128 (0.169)	0.7587	0.7752
Top4to6_sen_dyn2	2.493 (0.083)	2.365 (0.113)	-0.128 (0.137)	-0.9313	0.1768
Top7to9_sen_dyn1	**1.712 (0.100)**	**1.462 (0.133)**	**-0.251* (0.164)**	**-1.5337**	**0.0638**
Top7to9_sen_dyn2	2.205 (0.101)	2.154 (0.130)	-0.052 (0.163)	-0.3177	0.3756
T10to12_sen_dyn1	**1.452 (0.109)**	**1.212 (0.135)**	**-0.241* (0.172)**	**-1.3968**	**0.0825**
T10to12_sen_dyn2	**2.164 (0.105)**	**1.904 (0.141)**	**-0.261* (0.172)**	**-1.5145**	**0.0662**
Top6_sen_dyn1	3.822 (0.141)	3.750 (0.196)	-0.072 (0.235)	-0.3059	0.3801
Top6_sen_dyn2	**5.342 (0.096)**	**4.942 (0.181)**	**-0.400** (0.190)**	**-2.1028**	**0.0188**
Bot6_sen_dyn1	**3.164 (0.162)**	**2.673 (0.207)**	**-0.491** (0.259)**	**-1.8935**	**0.0303**
Bot6_sen_dyn2	4.370 (0.179)	4.058 (0.237)	-0.312 (0.292)	-1.0702	0.1433
Gov_dyn	0.630 (0.057)	0.558 (0.070)	-0.072 (0.089)	-0.8105	0.2096
Vgov_dyn	0.890 (0.037)	0.885 (0.045)	-0.006 (0.058)	-0.1005	0.4601
Prov_dyn	1.521 (0.068)	1.442 (0.084)	-0.078 (0.107)	-0.7288	0.2337
May_dyn1	0.671 (0.055)	0.673 (0.066)	0.002 (0.086)	0.0215	0.5085
Vmay_dyn1	0.534 (0.059)	0.462 (0.070)	-0.073 (0.091)	-0.7970	0.2135
May_dyn2	0.507 (0.059)	0.423 (0.069)	-0.084 (0.091)	-0.9205	0.1796
Vmay_dyn2	0.370 (0.057)	0.327 (0.066)	-0.043 (0.087)	-0.4920	0.3118
Mun_dyn1	1.205 (0.095)	1.135 (0.117)	-0.071 (0.150)	-0.4726	0.3187
Mun_dyn2	0.877 (0.091)	0.750 (0.122)	-0.127 (0.150)	-0.8468	0.1994
Rep_dyn	0.658 (0.056)	0.654 (0.067)	-0.004 (0.087)	-0.0424	0.4831
Local_dyn_m1	3.384 (0.186)	3.231 (0.227)	-0.153 (0.292)	-0.5233	0.3009

Local_dyn_m2	3.055 (0.173)	2.846 (0.224)	-0.209 (0.279)	-0.7481	0.2279
Total_dyn_s1m1	**10.370** **(0.312)**	**9.654** **(0.453)**	**-0.716*** **(0.532)**	**-1.3461**	**0.0904**
Total_dyn_s2m1	**13.096** **(0.314)**	**12.231** **(0.502)**	**-0.865*** **(0.563)**	**-1.5356**	**0.0636**
Total_dyn_s1m2	**10.041** **(0.306)**	**9.269** **(0.460)**	**-0.772*** **(0.530)**	**-1.4551**	**0.0741**
Total_dyn_s2m2	**12.767** **(0.307)**	**11.846** **(0.504)**	**-0.921*** **(0.559)**	**-1.6471**	**0.0510**

Note: H_0: difference = 0; H_a= difference < 0.

* significant at 10%; ** significant at 5%; ***significant at 1%.

Difference-in-Difference

Similar to using comparison of means, DID also shows significant impact of the cartoon and the lecture on the respondents' voting preference for dynastic candidates (see Table 6 for a summary of the DID regression results). Similarly, DID computation also shows that the lecture had an impact on more outcome indicators than the cartoon. Also, as hypothesized, computing for the DID using fixed effects increased significance levels.

In the cartoon group, only *Top7to9_sen_dyn1* and *Bot6_sen_dyn1* were significant at 5% level, with *Sen_dyn1_sum* and *Total_dyn_s1m1* the only other significant variables but only at 10%.[14] On the other hand, the lecture seems to have a much more pronounced impact on voting preference for dynastic candidates. All four outcome indicators that measure the total number of dynastic candidates selected for all positions (*Total_dyn_s1m1*, *Total_dyn_s2m1*, *Total_dyn_s1m2* and *Total_dyn_s2m2*) are significant at 1% level. Exposure to the lecture reduced the total number of dynastic candidates selected by about one. Similar to the comparison of means, the impact is again most visible in the senate – both outcome indicators that measure the number of dynastic senators selected (*Sen_dyn1_sum* and *Sen_dyn2_sum*) are significant at 1% level. The lecture reduced the number of selected dynastic senatorial candidates by about 0.8.[15] And unlike in the comparison of means, the impact of the lecture, when computed using DID, is also visible in the middle to lower ranks in the senate top 12. In fact, when DID is used, the impact on the middle to lower positions in the senate top 12 are even slightly larger than in the top senate posts.

[14] Unless otherwise indicated, significance levels when discussing DID are for those generated using Fixed Effects.
[15] The 0.8 fewer dynastic candidates can be clarified similar to the discussion in footnote 11.

DID computations also indicate that the lecture had an impact on voting preference for local positions (comparison of means did not). Exposure to the lecture resulted in about 0.2 less local dynastic candidates selected.[16] However, it is only minimally significant for individual local positions. Impact can be seen on the gubernatorial, mayoral and representative posts, albeit significance is weak at only 10% level.

Table 6. Difference-in-Difference Estimates of the Cartoon and the Lecture Using OLS and Fixed Effects

Outcome Indicator	Treatment 1 (Cartoon)		Treatment 2 (Lecture)	
	Using OLS DID (Std. Err.)	***Using Fixed Effects*** DID (Std. Err.)	***Using OLS*** DID (Std. Err.)	***Using Fixed Effects*** DID (Std. Err.)
Sen_dyn1_sum	-0.365 (0.409)	**-0.365*** **(0.206)**	-0.810 (0.500)	**-0.810***** **(0.237)**
Sen_dyn2_sum	-0.238 (0.400)	-0.238 (0.169)	-0.780 (0.535)	**-0.780***** **(0.249)**
Topsen_dyn1	-0.014 (0.098)	-0.014 (0.046)	-0.096 (0.107)	**-0.096*** **(0.053)**
Topsen_dyn2	-0.014 (0.031)	-0.014 (0.014)	-0.077 (0.053)	**-0.077**** **(0.031)**
Top3_sen_dyn1	-0.014 (0.202)	-0.014 (0.127)	-0.140 (0.223)	-0.140 (0.142)
Top3_sen_dyn2	-0.055 (0.115)	-0.055 (0.081)	-0.195 (0.124)	**-0.195**** **(0.092)**
Top4to6_sen_dyn1	0.082 (0.206)	0.082 (0.155)	0.101 (0.226)	0.101 (0.172)
Top4to6_sen_dyn2	-0.028 (0.147)	-0.028 (0.097)	-0.077 (0.180)	-0.077 (0.124)
Top7to9_sen_dyn1	**-0.347*** **(0.198)**	**-0.347**** **(0.151)**	**-0.601***** **(0.231)**	**-0.601***** **(0.173)**
Top7to9_sen_dyn2	0.041 (0.186)	0.093 (0.132)	-0.223 (0.223)	-0.223 (0.140)
T10to12_sen_dyn1	-0.086 (0.227)	-0.086 (0.159)	-0.170 (0.238)	-0.170 (0.170)
T10to12_sen_dyn2	-0.196 (0.214)	-0.196 (0.131)	-0.286 (0.244)	**-0.286**** **(0.140)**
Top6_sen_dyn1	0.068 (0.280)	0.068 (0.189)	-0.039 (0.317)	-0.039 (0.212)
Top6_sen_dyn2	-0.083 (0.186)	-0.083 (0.122)	-0.272 (0.241)	**-0.272*** **(0.160)**
Bot6_sen_dyn1	-0.433 (0.332)	**-0.433**** **(0.207)**	**-0.772**** **(0.362)**	**-0.772***** **(0.227)**
Bot6_sen_dyn2	-0.154 (0.322)	-0.154 (0.154)	-0.508 (0.398)	**-0.508***** **(0.180)**

[16] The 0.2 fewer dynastic candidates can be clarified similar to the discussion in footnote 11.

Gov_dyn	-0.028 (0.116)	-0.028 (0.020)	-0.052 (0.126)	**-0.052*** **(0.028)**
Vgov_dyn	0.000 (0.078)	0.000 (0.028)	-0.058 (0.077)	-0.058 (0.036)
Prov_dyn	-0.028 (0.150)	-0.028 (0.039)	-0.110 (0.148)	**-0.110**** **(0.050)**
May_dyn1	-0.014 (0.112)	-0.014 (0.031)	-0.019 (0.121)	-0.019 (0.028)
Vmay_dyn1	0.014 (0.119)	0.014 (0.024)	-0.019 (0.129)	-0.019 (0.016)
May_dyn2	-0.014 (0.119)	-0.014 (0.024)	-0.052 (0.129)	**-0.052*** **(0.028)**
Vmay_dyn2	0.028 (0.114)	0.028 (0.028)	0.000 (0.123)	0.000 (-)
Mun_dyn1	0.000 (0.195)	0.000 (0.040)	-0.038 (0.212)	-0.038 (0.040)
Mun_dyn2	0.014 (0.195)	0.014 (0.037)	-0.052 (0.211)	**-0.052*** **(0.028)**
Rep_dyn	0.014 (0.115)	0.014 (0.031)	-0.052 (0.122)	**-0.052*** **(0.028)**
Local_dyn_m1	-0.013 (0.387)	-0.013 (0.061)	-0.200 (0.407)	**-0.200**** **(0.100)**
Local_dyn_m2	0.001 (0.370)	0.001 (0.062)	-0.214 (0.387)	**-0.214***** **(0.077)**
Total_dyn_s1m1	-0.378 (0.620)	**-0.378*** **(0.228)**	-1.011 (0.711)	**-1.011***** **(0.299)**
Total_dyn_s2m1	-0.251 (0.604)	-0.251 (0.194)	-0.981 (0.746)	**-0.981***** **(0.321)**
Total_dyn_s1m2	-0.364 (0.610)	-0.364 (0.228)	-1.024 (0.707)	**-1.024***** **(0.286)**
Total_dyn_s2m2	-0.236 (0.595)	-0.236 (0.194)	-0.994 (0.738)	**-0.994***** **(0.303)**

* significant at 10%; ** significant at 5%; ***significant at 1%.

Comparison of Impact of Cartoon and Lecture

The preceding discussions show that the lecture seems to have a greater impact than the cartoon on the preference for dynastic candidates. The lecture gives higher coefficients and higher significance values than the cartoon both when using comparison of means and DID. To give more weight to this inference, the same DID and comparison of means analyses were applied to the two treatments (with the cartoon serving as the "control"), to determine if there is statistical difference in the impact of the two methods of delivery of information.

Table 7 shows post-treatment comparison of means between the two treatment groups. Differences show that there are indeed significant differences between the two treatments. Out of

the 11 outcome indicators wherein the lecture has a significant impact and the cartoon does not, seven have a statistical difference when the cartoon and the lecture were compared (with the lecture having a stronger impact). And out of the three outcome indicators in which both the cartoon and the lecture have significant impact, one has a statistical difference when the cartoon and the lecture were compared (with the lecture having a stronger impact).

Table 7. Post-Treatment Comparison of Means Between the Cartoon and Lecture Groups

Outcome Indicator	**Cartoon Group Mean** (Std. Err.)	**Lecture Group Mean** (Std. Err.)	**Difference** (Std. Err.)	**t-stat**	**p-value**
Sen_dyn1_sum†	**6.915 (0.195)**	**6.423 (0.323)**	**-0.492* (0.358)**	**-1.3744**	**0.0859**
Sen_dyn2_sum†	**9.817 (0.162)**	**9.000 (0.367)**	**-0.817** (0.367)**	**-2.2272**	**0.0139**
Topsen_dyn1‡	0.732 (0.053)	0.654 (0.067)	-0.079 (0.084)	-0.9340	0.1761
Topsen_dyn2‡	**0.958 (0.024)**	**0.846 (0.051)**	**-0.112** (0.052)**	**-2.1658**	**0.0161**
Top3_sen_dyn1	2.014 (0.109)	1.923 (0.137)	-0.091 (0.173)	-0.5261	0.2999
Top3_sen_dyn2‡	2.704 (0.071)	2.577 (0.096)	-0.127 (0.117)	-1.0907	0.1388
Top4to6_sen_dyn1	1.845 (0.107)	1.827 (0.128)	-0.018 (0.167)	-0.1090	0.4567
Top4to6_sen_dyn2	**2.577 (0.069)**	**2.365 (0.113)**	**-0.212** (0.126)**	**-1.6873**	**0.0471**
Top7to9_sen_dyn1†	1.592 (0.097)	1.462 (0.133)	-0.130 (0.161)	-0.8078	0.2104
Top7to9_sen_dyn2	**2.423 (0.074)**	**2.154 (0.130)**	**-0.269** (0.141)**	**-1.9071**	**0.0294**
T10to12_sen_dyn1†	**1.465 (0.111)**	**1.212 (0.135)**	**-0.253* (0.174)**	**-1.4530**	**0.0744**
T10to12_sen_dyn2†	2.113 (0.103)	1.904 (0.141)	-0.209 (0.171)	-1.2246	0.1116
Top6_sen_dyn1	3.859 (0.154)	3.750 (0.196)	-0.109 (0.246)	-0.4432	0.3292
Top6_sen_dyn2†	**5.282 (0.099)**	**4.942 (0.181)**	**-0.339** (0.193)**	**-1.7591**	**0.0405**
Bot6_sen_dyn1†	**3.056 (0.163)**	**2.673 (0.207)**	**-0.383* (0.260)**	**-1.4750**	**0.0714**
Bot6_sen_dyn2	**4.535 (0.128)**	**4.058 (0.237)**	**-0.478** (0.252)**	**-1.8956**	**0.0302**
Gov_dyn	0.577 (0.059)	0.558 (0.070)	-0.020 (0.091)	-0.2170	0.4143
Vgov_dyn	0.859 (0.042)	0.885 (0.045)	0.025 (0.062)	0.4116	0.6593

Prov_dyn	1.437 (0.082)	1.442 (0.084)	0.006 (0.120)	0.0474	0.5189
May_dyn1	0.662 (0.057)	0.673 (0.066)	0.011 (0.087)	0.1280	0.5508
Vmay_dyn1	0.507 (0.060)	0.462 (0.070)	-0.046 (0.092)	-0.4952	0.3107
May_dyn2	0.535 (0.060)	0.423 (0.069)	-0.112 (0.091)	-1.2266	0.1112
Vmay_dyn2	0.380 (0.058)	0.327 (0.066)	-0.053 (0.088)	-0.6058	0.2729
Mun_dyn1	1.169 (0.100)	1.135 (0.117)	-0.034 (0.154)	-0.2235	0.4118
Mun_dyn2	0.915 (0.104)	0.750 (0.122)	-0.165 (0.160)	-1.0329	0.1519
Rep_dyn	0.577 (0.059)	0.654 (0.067)	0.076 (0.090)	0.8534	0.8024
Local_dyn_m1	3.183 (0.204)	3.231 (0.227)	0.048 (0.308)	0.1549	0.5614
Local_dyn_m2	2.930 (0.198)	2.846 (0.224)	-0.083 (0.300)	-0.2778	0.3908
Total_dyn_s1m1†	10.099 (0.313)	9.654 (0.453)	-0.445 (0.533)	-0.8343	0.2029
Total_dyn_s2m1†	**13.000 (0.284)**	**12.231 (0.502)**	**-0.769* (0.542)**	**-1.4191**	**0.0792**
Total_dyn_s1m2†	9.845 (0.314)	9.269 (0.460)	-0.576 (0.538)	-1.0712	0.1431
Total_dyn_s2m2†	**12.746 (0.284)**	**11.846 (0.504)**	**-0.900* (0.544)**	**-1.6555**	**0.0502**

Note: H_0: difference = 0; H_a= difference < 0.

* significant at 10%; ** significant at 5%; ***significant at 1%.

† Significant in lecture but not in cartoon.

‡ Significant in both lecture and cartoon.

The cartoon and the lecture also show differences in impact when DID is used as shown in Table 8. Out of the 17 outcome indicators in which the lecture has a significant impact and the cartoon does not, nine have a statistical difference when the cartoon and the lecture were compared (with the lecture having a stronger impact). Out of the four outcome indicators in which both the cartoon and the lecture have significant impact, one has a statistical difference when the cartoon and the lecture were compared (with the lecture having a stronger impact).

Table 8. Difference-in-Difference Applied on the Cartoon and Lecture, with the Cartoon as the 'Control'

Outcome Indicator	***Using OLS*** DID (Std. Err.)	***Using Fixed Effects*** DID (Std. Err.)
Sen_dyn1_sum‡	-0.445 (0.461)	-0.445 (0.301)
Sen_dyn2_sum†	-0.543 (0.464)	**-0.543* (0.297)**
Topsen_dyn1†	-0.082 (0.116)	-0.082 (0.061)
Topsen_dyn2†	-0.063 (0.065)	**-0.063* (0.036)**
Top3_sen_dyn1	-0.126 (0.240)	-0.126 (0.153)
Top3_sen_dyn2†	-0.140 (0.148)	-0.140 (0.110)
Top4to6_sen_dyn1	0.019 (0.225)	0.019 (0.190)
Top4to6_sen_dyn2	-0.049 (0.165)	-0.049 (0.130)
Top7to9_sen_dyn1‡	-0.254 (0.229)	-0.254 (0.184)
Top7to9_sen_dyn2	-0.264 (0.200)	-0.264 (0.168)
T10to12_sen_dyn1	-0.085 (0.247)	-0.085 (0.184)
T10to12_sen_dyn2†	-0.090 (0.240)	-0.090 (0.177)
Top6_sen_dyn1	-0.106 (0.323)	-0.106 (0.240)
Top6_sen_dyn2†	-0.189 (0.241)	-0.189 (0.180)
Bot6_sen_dyn1‡	-0.339 (0.358)	-0.339 (0.239)
Bot6_sen_dyn2†	-0.354 (0.341)	**-0.354* (0.209)**
Gov_dyn†	-0.024 (0.128)	-0.024 (0.028)
Vgov_dyn	-0.058 (0.083)	-0.058 (0.036)
Prov_dyn†	-0.082 (0.167)	-0.082 (0.056)
May_dyn1	-0.005 (0.122)	-0.005 (0.033)
Vmay_dyn1	-0.033 (0.130)	-0.033 (0.033)
May_dyn2†	-0.038 (0.130)	-0.038 (0.033)

Vmay_dyn2	-0.028 (0.124)	-0.028 (0.033)
Mun_dyn1	-0.038 (0.216)	-0.038 (0.052)
Mun_dyn2†	-0.067 (0.226)	-0.067 (0.047)
Rep_dyn†	-0.067 (0.126)	**-0.067*** **(0.040)**
Local_dyn_m1†	-0.187 (0.428)	**-0.187*** **(0.106)**
Local_dyn_m2†	-0.215 (0.416)	**-0.215**** **(0.088)**
Total_dyn_s1m1‡	-0.632 (0.687)	**-0.632*** **(0.354)**
Total_dyn_s2m1†	-0.730 (0.701)	**-0.730**** **(0.368)**
Total_dyn_s1m2†	-0.661 (0.691)	**-0.661*** **(0.344)**
Total_dyn_s2m2†	-0.758 (0.702)	**-0.758**** **(0.353)**

* significant at 10%; ** significant at 5%; ***significant at 1%.

† Significant in lecture but not in cartoon.

‡ Significant in both lecture and cartoon.

There are several observations and implications that can be drawn from the abovementioned results. First, there is evidence that the lecture and the cartoon had an effect in terms of reducing votes for dynasties, but this depends on the method used in computing for the impact and on the dynastic outcome indicator. This is true both when using comparison of means and DID computing for the impact. There are slight differences though in the outcome indicators affected and the significance levels. Second, the lecture has greater impact than the cartoon in affecting the voting patterns of the participants. This means that direct person-to-person interaction appears to be more effective in influencing the choice of young voters. Person to person interaction is more personal. It does not use any medium (i.e. TV, radio, news) to deliver information, thus information is not merely on a cognitive level but affectively absorbed by the recipient of the information. Cognitive level appeals to the eye and hearing, but an affective level of recognition of information appeals to intellect and emotion followed by a deeper personal discernment.

This has an implication on the cost of information dissemination and priming of voters. There is sometimes a tradeoff between the cost and effectiveness of information dissemination.

Sometimes, the less expensive method is also the less effective, and policy-makers and advocates have to strike a balance between the two. Third, the impact is most visible in the senate and considerably less in local positions.

A possible explanation for the weaker impact in local positions is the students' lack of information about local politics in their hometowns. It is possible that dynasties at the national level are recognized more widely through media coverage, while many dynasties at the local government level are less visible. The youth may not know who is dynastic or not, or they may simply not know the candidates. Lack of choice is also a possible explanation. Many local positions are being contested by two or more dynastic politicians with few, if any, non-dynastic alternatives. For instance, based on the official information from COMELEC, only about nine percent of the respondents were from provinces where gubernatorial candidates are a mix of dynastic and non-dynastic candidates; while about 25 percent were from provinces where vice-gubernatorial candidates are a mix of dynastic and non-dynastic candidates. Further, only about 27 percent of the respondents had a choice between dynastic and non-dynastic candidates for the House of Representatives. This highlights the other implication of a dynastic political landscape—that there could be potential crowding-out of any viable non-dynastic alternative leaders. And while there are some positions contested by all non-dynastic candidates, these figures generally suggest that most of the students hail from jurisdictions wherein there is very little choice beyond dynastic options—many of the incumbents are running unopposed, or opposed only by other political dynasties. The students are mostly from the Central and Northern Luzon, where dynastic political system is more a norm than an exception. While this may appear as a limitation to the study, the result of this survey can be a live case of studying voting behavior of young people in a dynastic political system.

The observation may also indicate the lack of interest or even initiative on the part of the students to know their candidates. For instance, most of the students will go home only during the weekend or during election time which may not give them sufficient time to know their local candidates. Hence they may just rely on what their parents or clan leaders will tell them who to vote. The lackadaisical attitude of young people about their local candidates may also insinuate deeper social maladies. Unconsciously also, students may have imbibed their parents loyalty to the dynasties, hence acquiring a subjective and submissive attitude to the political dynasty. Further, students too may revere political dynasties and hence become loyal to them overtime,

particularly when their family/ies have benefitted from the political clan, and hence they expect also the same benevolence when it is their time to work.

Overall, the impact of the treatments still appears moderate. In spite of the impact of the lecture appearing in about two-thirds of the outcome variables (based on DID), the *magnitude* of the impact is modest. Exposure to the lecture resulted in only about one less dynastic candidate selected across all 17 positions included in the survey (12 senators, 1 each for governor, vice-governor, mayor, vice-mayor and representative). However, with such short exposures to the treatments (five-minute cartoon and 30-minute lecture), we argue that these effects are nevertheless noteworthy. Much longer and consistent exposure to the treatments could potentially improve the impact dramatically.

IV. CONCLUSION

This paper seeks to evaluate the impact of young voters' access to information on political dynasties (i.e. the socio-economic correlates of this phenomenon) vis-à-vis their voting choices for top local government positions and the Senate in the Philippines. There are three main conclusions that can be drawn from the analysis in this study. First, there is evidence that the lecture and the cartoon had an effect in terms of reducing votes for dynasties, but this depends on the method used in computing for the impact as well as the dynastic outcome indicator. Second, the lecture has a greater impact than the cartoon on affecting the voting preference of the participants in terms of selecting dynastic candidates. And third, as regards over-all vote adjustment patterns, the impact is most visible on senate positions and considerably less on local government posts.

Although this experiment is not nationally-representative and external validity is limited only to the college where it was conducted, we can nevertheless use the findings to help illustrate their practical implications on voting outcomes. The approximate number of voters in the 18 to 21 age group (i.e. these are the ages of the respondents who are qualified to vote) is about 6.3 million. If those who were exposed to the lecture are 7.7 percent less likely to vote for a dynastic candidate for the top senate position (*Topsen_dyn2*, DID), then this would potentially translate to up to about 485 thousand less votes for dynastic politicians for the top senate spot. Similarly, using the result that exposure to the lecture results in 0.8 less dynastic candidates selected for the senate, this will potentially translate to up to about 5 million less votes for dynastic senatorial candidates across the 12 senate spots. Again, it should be emphasized that this is a mere illustration and not a projection of effects on actual elections. Nevertheless, the results are compelling in their potential magnitude, should these estimates hold true for the larger youth population.

As regards future research in this area, there are several directions for possible exploration. First, one possible explanation for the generally moderate impact of the treatments is the amount of time of exposure to the information on political dynasties. The cartoon presentation was only five minutes long, while the lecture was delivered in 30 minutes. A longer exposure to these treatments may be required for their full effects to appear; or the participants may need some time for them to digest and absorb the information. For instance, in the Banerjee et al (2011) experiment, the informational report cards were left in the households, thus members

could look at them any time for about 10 days before the election (when the outcome indicators were measured).

Nevertheless, impact evaluation research here should also guard against possible contamination if the lag between exposure to treatment and the follow up survey is too long, or if exposure to treatment takes days or weeks. For an experiment similar to what we did here, by the time this period has elapsed, a number of factors could have already affected the participants' choice of candidates and the control group may have received some information from the treatment groups.

In addition, it is also possible that the over-all impact could be different depending on the where the students come from. This study has focused on students originally residing in provinces in the Northern-most part of the Philippines. This general area (along with the Southern-most provinces) contains some of the heaviest dynastic concentrations in the country (MBVY, 2012). Future research could explore the extent to which youth voting behavior may be different across the country.

Finally, it is also possible that the characteristics inherent in the design of the cartoon or the delivery of the lecture could also influence its general effectiveness as a means to convey information. (In short, part of the impact could be due to the messenger rather than the message itself.) Future research in this area could also explore other delivery mechanisms which may relate more strongly to young people. An example is a peer sharing some of the findings of the study.

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Annex 1. Photographs of the Youth Voting Experiment

Annex Figure 1. Students answering the survey

Annex Figure 2. Students watching the political dynasties cartoon

Annex Figure 3. Screenshot of front cover of the political dynasties cartoon

Available at: http://www.youtube.com/watch?v=7hV5Xra6f0s&feature=youtu.be.

Annex 2. Notes on the Methodology

Difference-in-Difference

Using the difference-in-difference (DID) method, the impact (I) of the treatment on the outcome is measured using the following formula:

$$I = (T_1 - T_0) - (C_1 - C_0) \qquad \text{➔ } \textbf{\textit{Equation 1}}$$

Where,

T_1 = outcome indicator for the treatment group after the treatment has been applied

T_0 = outcome indicator for the treatment group at baseline

C_1 = outcome indicator for the control group after the treatment has been applied (to the treatment group)

C_0 = outcome indicator for the control group at baseline

DID estimation can also be applied using regression. Following the discussion by Khandker, et al (2010, p. 190), performing OLS on the following equation will estimate DID:

$$T_{ij} = \beta_0 + \beta_1 X + \beta_2 Y + \beta_3 XY + \mu_{ij} \qquad \text{➔ } \textbf{\textit{Equation 2}}$$

Where,

T_{ij} = outcome indicator for observation i at time j

X = treatment dummy (indicates treatment or control)

Y = time dummy (indicates baseline or follow-up)

XY = interaction term of variables X and Y

β_1 = coefficient of X

β_2 = coefficient of Y

β_3 = coefficient of XY

μ_{ij} = error term

The variable of interest here is β_3, which estimates the DID. In the case of this study, a two-period panel data of voting intentions was generated. This allows for the use of Fixed Effects

regression in estimating Equation 2. Using Fixed Effects can potentially show better significance levels because it reduces the noise in the dataset.

Comparison of Means of Outcomes

In this method, the mean outcome indicators for each of the two treatment groups are compared to the mean outcome indicators of the control group. The impact (I) of the treatment on the outcome is measured using the following formula:

$$I = (\mathrm{T} - \mathrm{C}) \qquad \text{➔ } \textbf{\textit{Equation 3}}$$

Where,

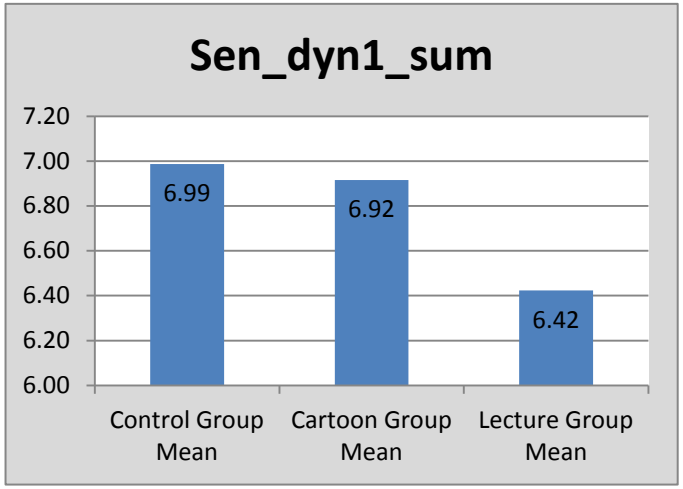
T = outcome indicator for the treatment group (after the treatment has been applied)

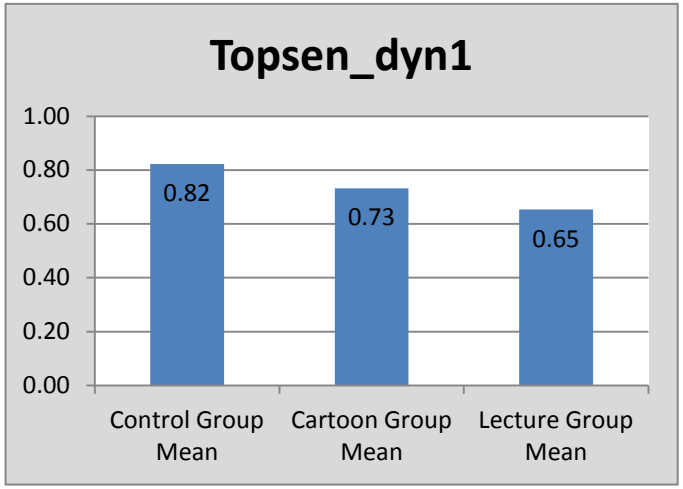
C = outcome indicator for the control group (after the treatment has been applied to the treatment group)

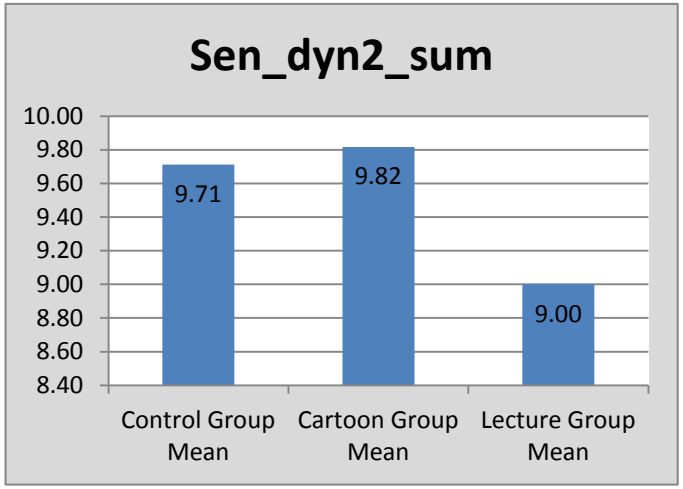
The comparison of means described above can also be implemented by running an OLS regression with the outcome indicator as the dependent variable and a treatment dummy as the regressor (Khandker, et al, 2010, p. 174).

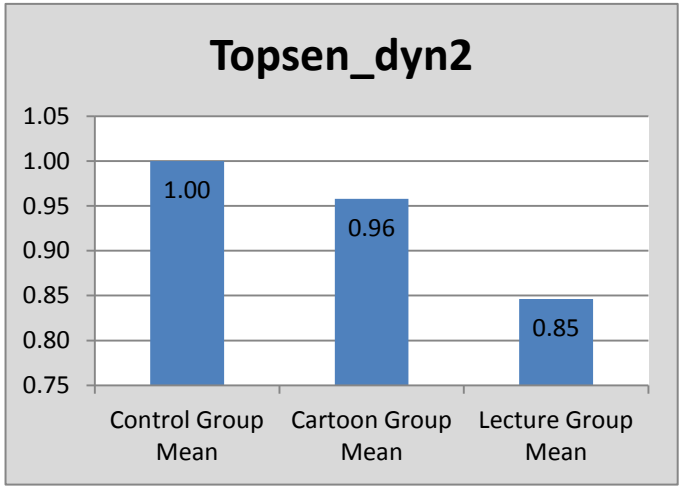
Annex 3. Graphical Comparison of Means of Control, Cartoon and Lecture Groups per Outcome Indicator.

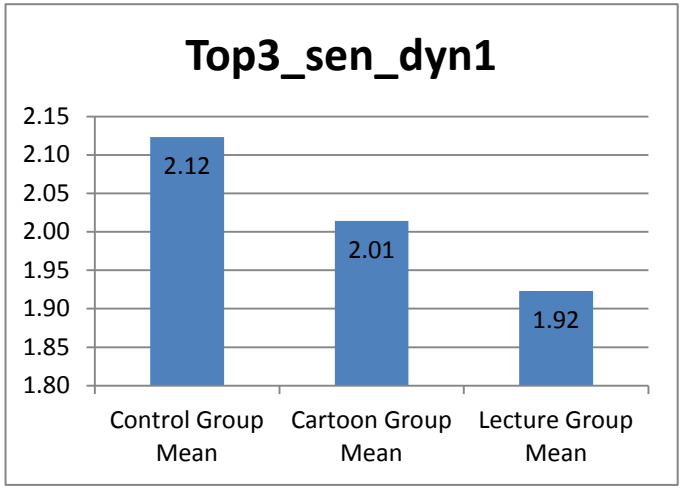
(Note: Outcome indicators with significant difference (at most 10% level) between control and treatment groups are highlighted.)

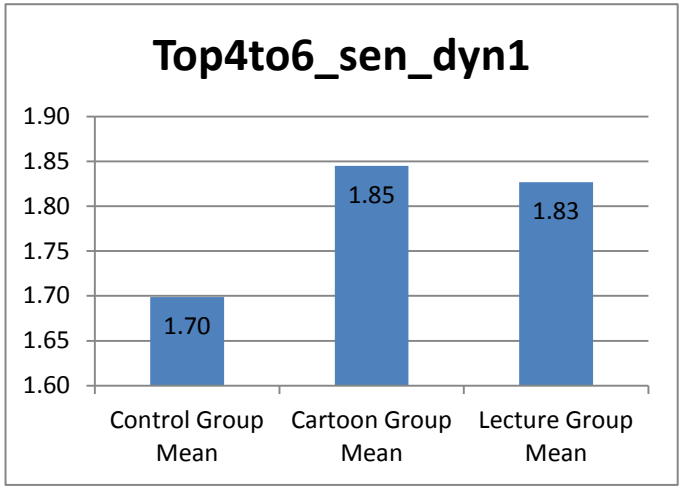


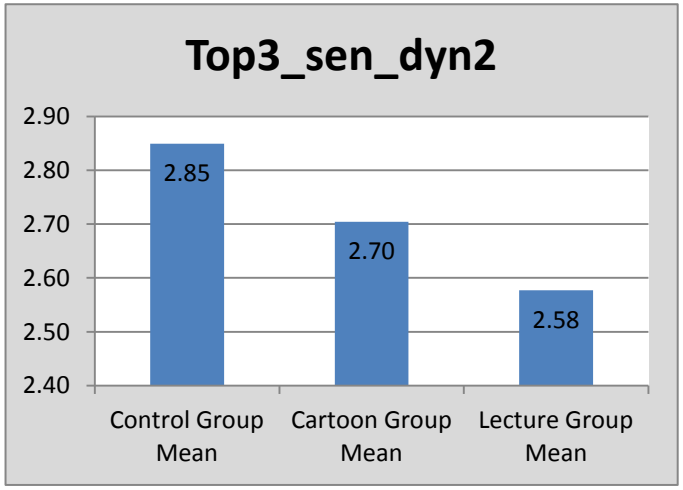


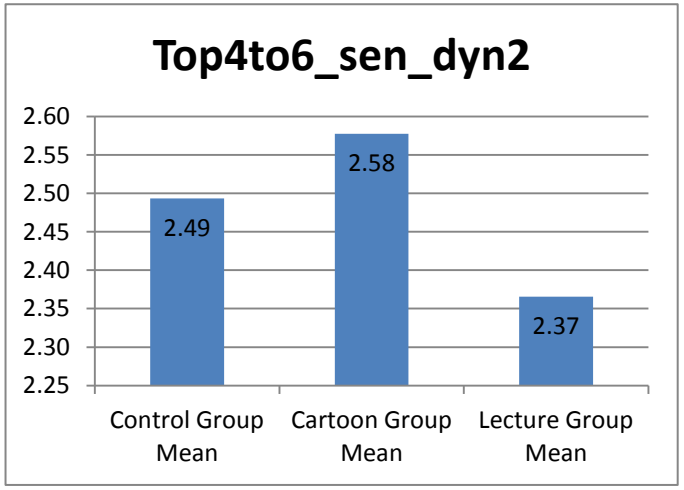





Top3_sen_dyn1
2.15
2.10
2.05
2.00
1.95
1.90
1.85
1.80
2.12
2.01
1.92
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Top4to6_sen_dyn1
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.70
1.85
1.83
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Top3_sen_dyn2
2.90
2.80
2.70
2.60
2.50
2.40
2.85
2.70
2.58
Control Group Mean
Cartoon Group Mean
Lecture Group Mean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2.60
2.55
2.50
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2.35
2.30
2.25
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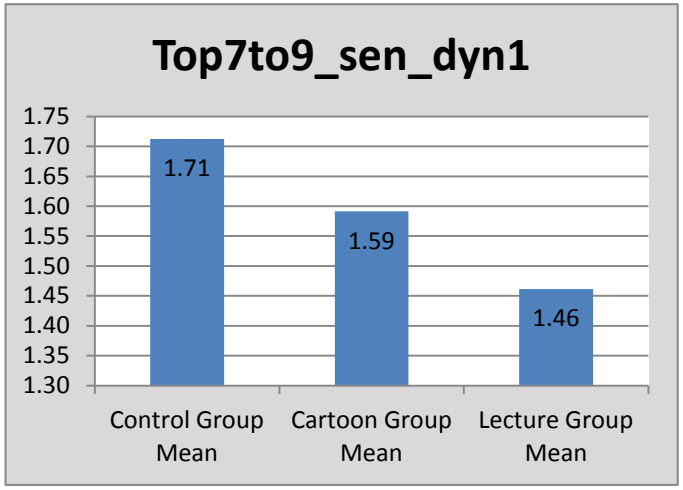
2.58
2.37
Control Group Mean
Cartoon Group Mean
Lecture Group Mean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1.65
1.60
1.55
1.50
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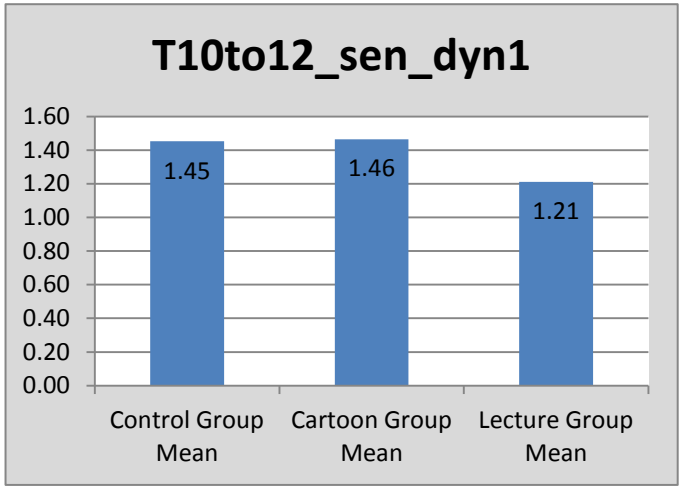
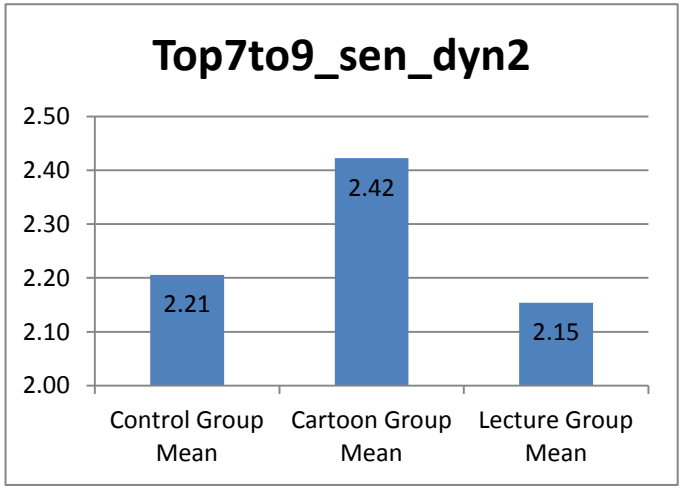
1.40
1.35
1.30
1.71
1.59
1.46
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


T10to12_sen_dyn1
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1.45
1.46
1.21
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Top7to9_sen_dyn2
2.50
2.40
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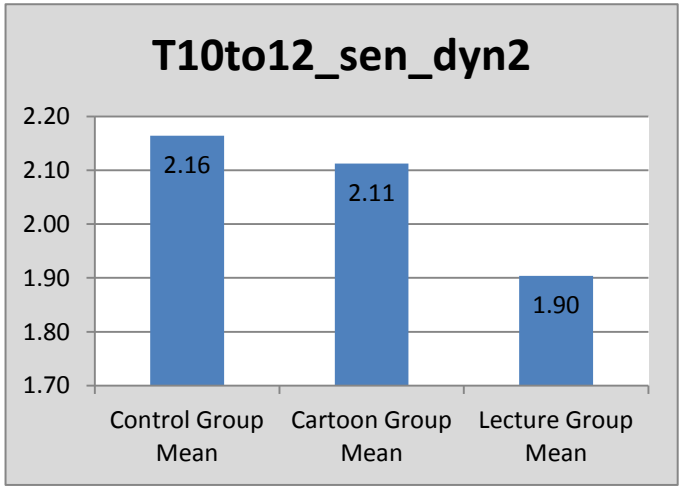
2.20
2.10
2.00
2.21
2.42
2.15
Control Group Mean
Cartoon Group Mean
Lecture Group Mean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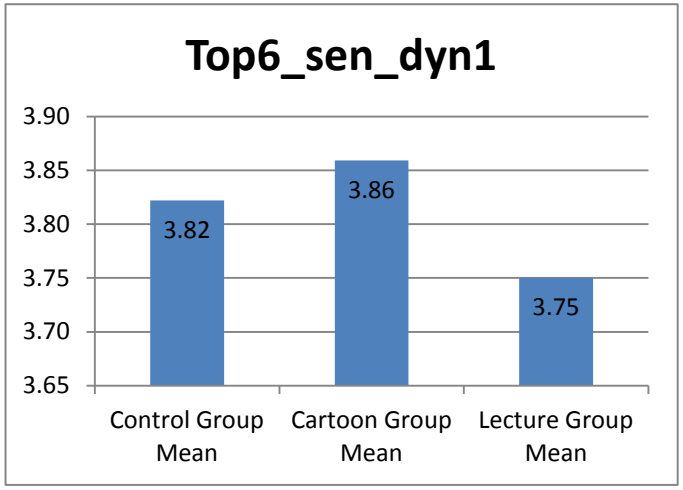
2.20
2.10
2.00
1.90
1.80
1.70
2.16
2.11
1.90
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Top6_sen_dyn1
3.90
3.85
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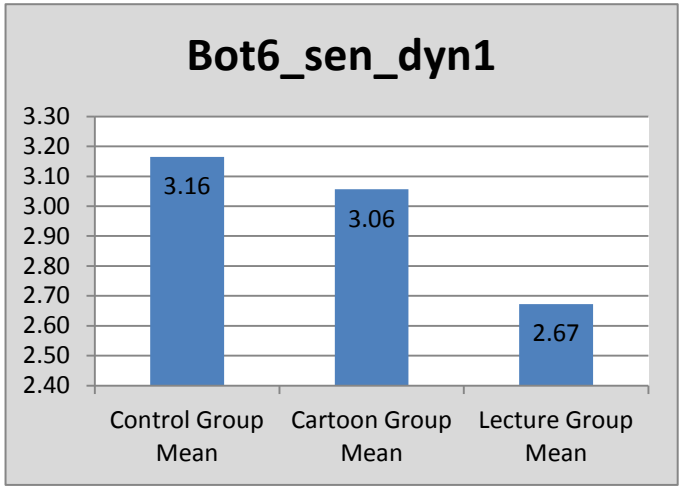
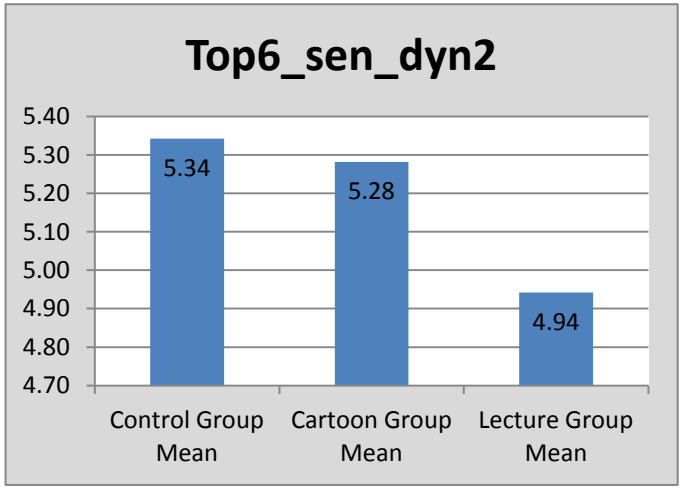
3.75
3.70
3.65
3.82
3.86
3.75
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Bot6_sen_dyn1
3.30
3.20
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40
3.16
3.06
2.67
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Top6_sen_dyn2
5.40
5.30
5.20
5.10
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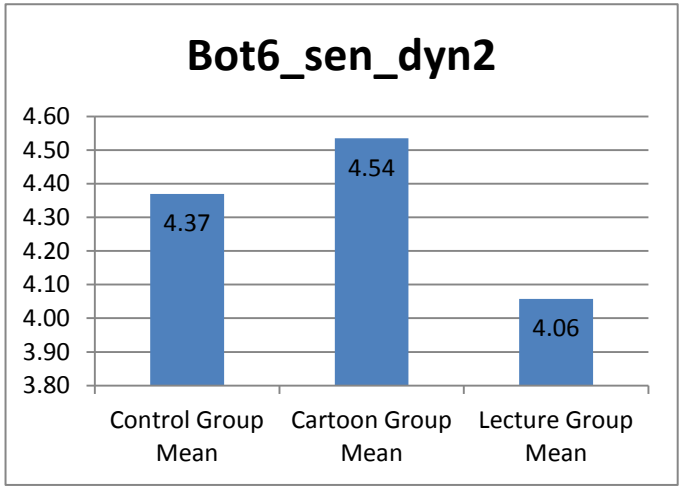
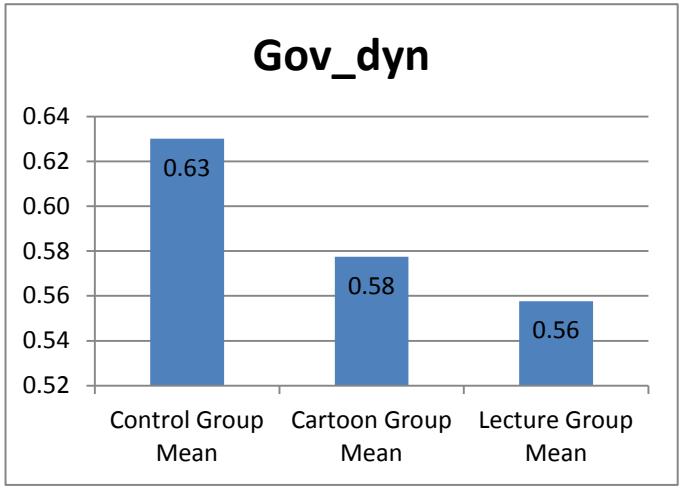
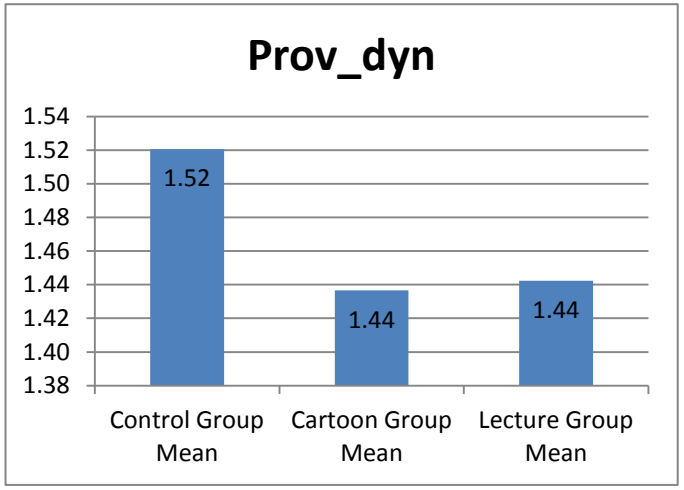
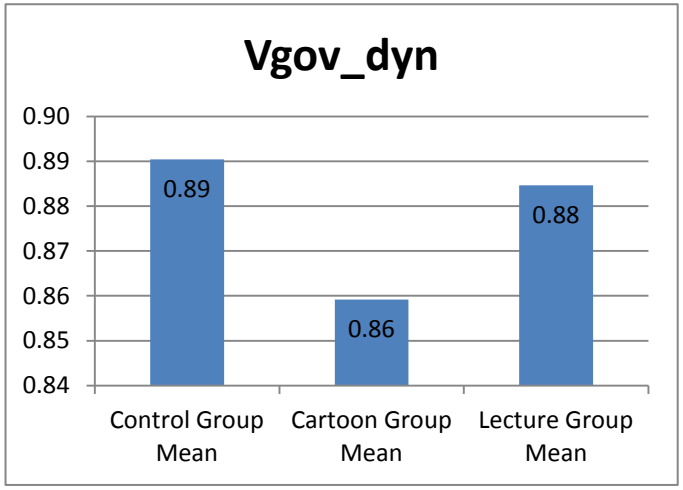
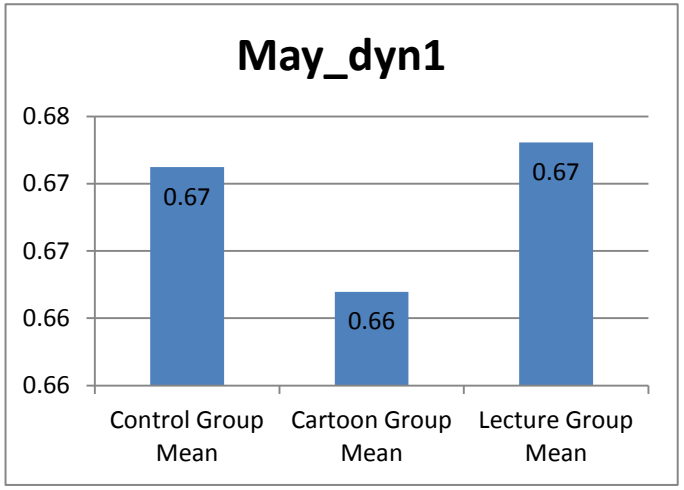
4.90
4.80
4.70
5.34
5.28
4.94
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

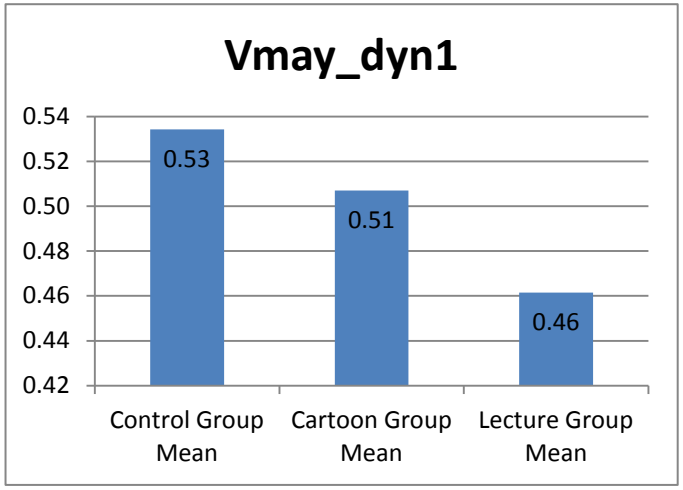

Bot6_sen_dyn2
4.60
4.50
4.40
4.30
4.20
4.10
4.00
3.90
3.80
4.37
4.54
4.06
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

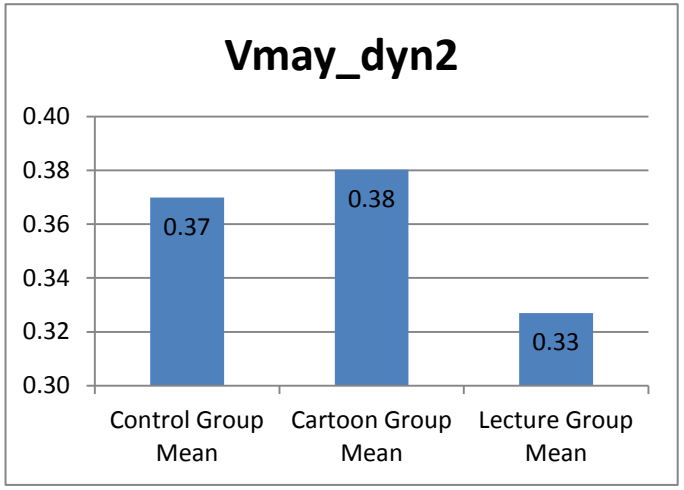

Gov_dyn
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.63
0.58
0.56
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

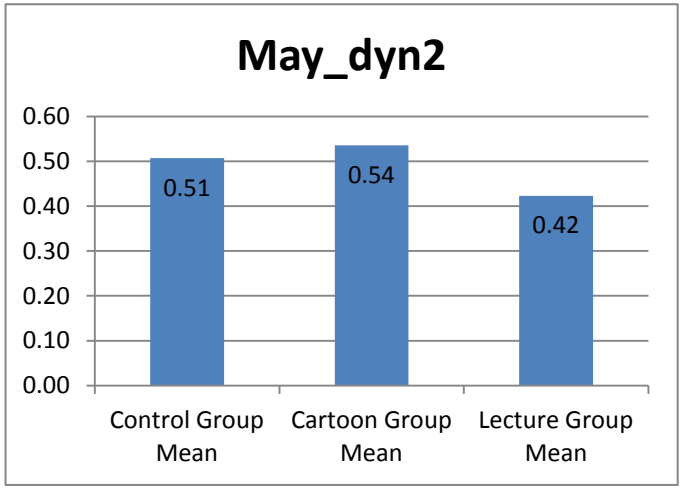

Prov_dyn
1.54
1.52
1.50
1.48
1.46
1.44
1.42
1.40
1.38
1.52
1.44
1.44
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

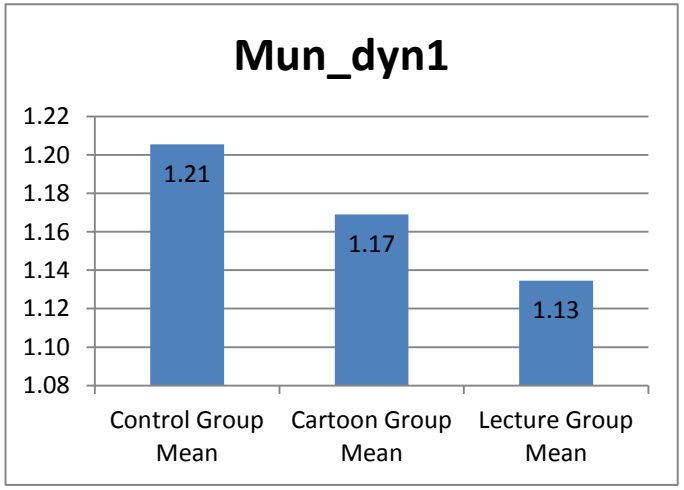

Vgov_dyn
0.90
0.89
0.88
0.87
0.86
0.85
0.84
0.89
0.86
0.88
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

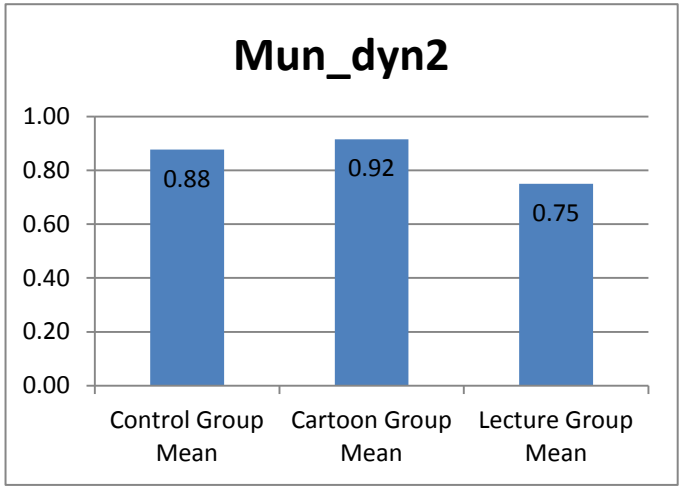

May_dyn1
0.68
0.67
0.67
0.66
0.66
0.67
0.66
0.67
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Vmay_dyn1
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.53
0.51
0.46
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Vmay_dyn2
0.40
0.38
0.36
0.34
0.32
0.30
0.37
0.38
0.33
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


May_dyn2
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.51
0.54
0.42
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Mun_dyn1
1.22
1.20
1.18
1.16
1.14
1.12
1.10
1.08
1.21
1.17
1.13
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Mun_dyn2
1.00
0.80
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0.40
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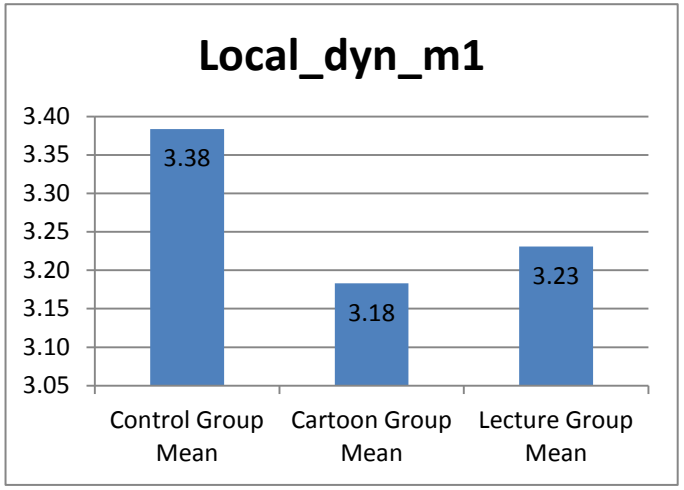
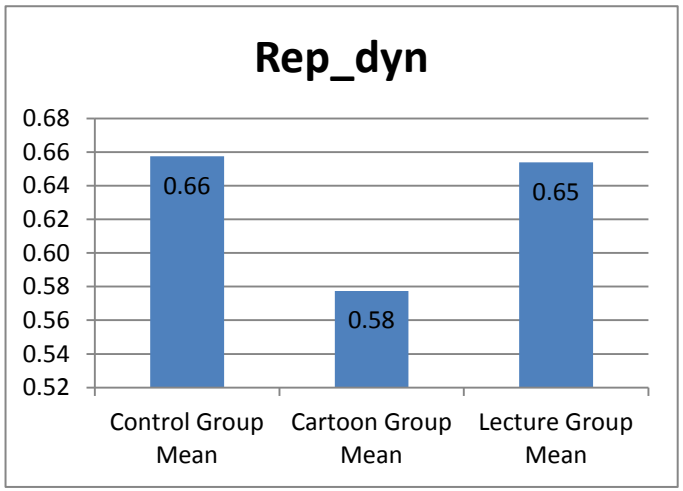
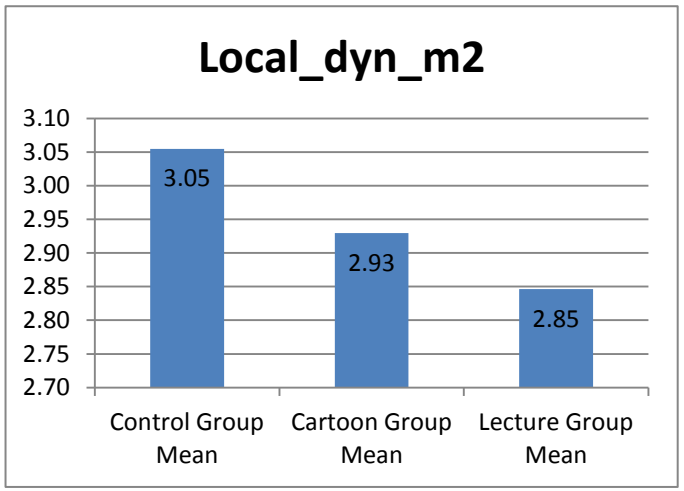
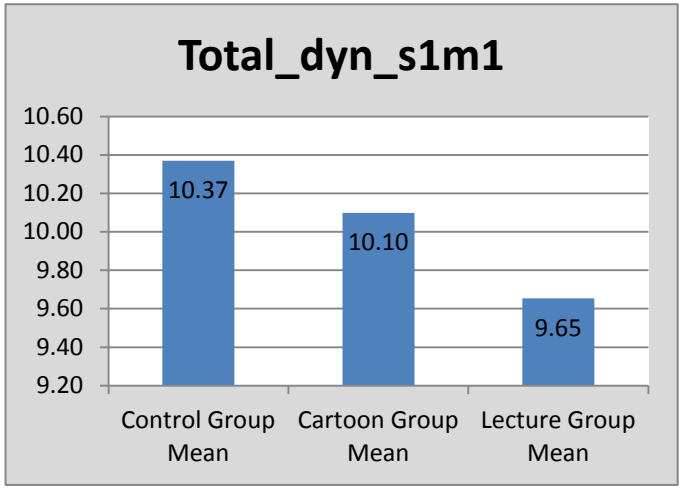
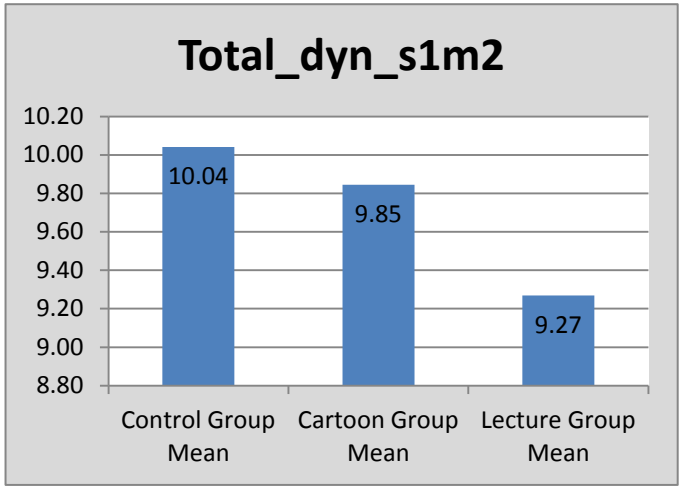
0.88
0.92
0.75
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

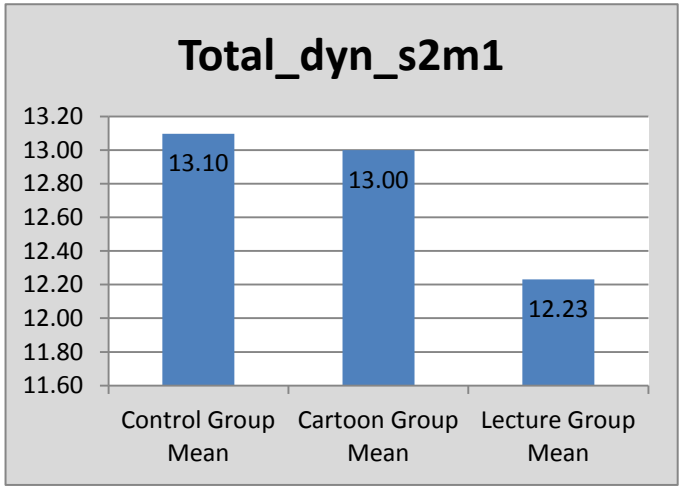

Local_dyn_m1
3.40
3.35
3.30
3.25
3.20
3.15
3.10
3.05
3.38
3.18
3.23
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

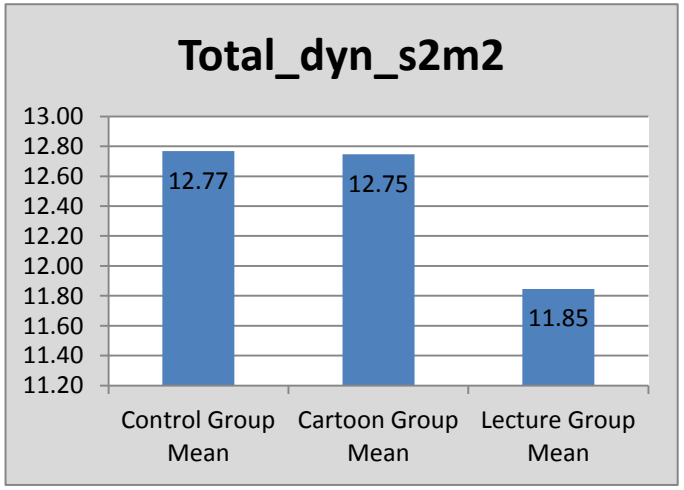

Rep_dyn
0.68
0.66
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.66
0.58
0.65
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Local_dyn_m2
3.10
3.05
3.00
2.95
2.90
2.85
2.80
2.75
2.70
3.05
2.93
2.85
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Total_dyn_s1m1
10.60
10.40
10.20
10.00
9.80
9.60
9.40
9.20
10.37
10.10
9.65
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Total_dyn_s1m2
10.20
10.00
9.80
9.60
9.40
9.20
9.00
8.80
10.04
9.85
9.27
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Total_dyn_s2m1
13.20
13.00
12.80
12.60
12.40
12.20
12.00
11.80
11.60
13.10
13.00
12.23
Control Group Mean
Cartoon Group Mean
Lecture Group Mean


Total_dyn_s2m2
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12.80
12.60
12.40
12.20
12.00
11.80
11.60
11.40
11.20
12.77
12.75
11.85
Control Group Mean
Cartoon Group Mean
Lecture Group Mean

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