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LSE GROUPS takes place during the final fortnight of the LSE summer term. Undergraduate students are placed in small groups; these are cross-year, interdisciplinary, and group members do not know one another in advance. Each group must then devise its own research question, and carry out every stage of a small-scale research project in less than two weeks.

LSE GROUPS is part of the LSE commitment to students learning through enquiry, and developing the skills for knowledge creation.

The overall theme of LSE GROUPS 2022 was *Resilience and the 'New Normal'*.

This paper was submitted on the final Thursday afternoon of the project. Students then presented their work at a conference, on the closing Friday.

More information on LSE GROUPS, and other papers.

Papers are presented as submitted by the students, without corrections.

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Introversion or Extroversion: The Adaptation of LSE Students to Online Learning

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Abstract

Traits of introversion or extroversion influence adaptation to social change. The transition to online learning has changed the feelings, social experiences and academic performances of university students. Though studies have analysed social demographics, no studies have looked at how personality has influenced this adaptation. Thus, we ask the question: *How do traits of introversion or extroversion influence the adaptation of LSE students to online learning?* Based on our literature review, we hypothesise that extroverted students are likely to better adapt to online learning. We use a survey and regression analysis, complemented by interviews, to test for this hypothesis. Overall, our findings confirm that extroverted students adapt more positively. Controlling for individual characteristics, we find a positive relation between introversion and loneliness and a negative relation between introversion and motivation to study. We discovered two interesting findings: introverted students feel more included in the LSE community and understand the course content better compared to extroverted students online. Our research contributes to existing personality theories and the ever growing literature on the 'new'post-covid world. Our unexpected findings however challenge the status quo and urge for further research into how introverts and extroverts respond to social change. At most, we hope our findings inform the LSE with a new perspective in improving wellbeing, networking and teaching services.

Keywords: Personality, Extroversion, Online Learning, LSE, Resilience

Introduction:

Whether someone is introverted or extroverted impacts the way they perceive and adapt to change (Jung, 1971). University students have had to adapt to online learning during the Covid-19 pandemic. The influence of personality on this adaptation has not yet been researched. Building on psychological literature, this paper asks: *How do traits of introversion or extroversion influence the adaptation of LSE students to online learning*? With the hypothesis that extroverts adapt more positively, we observe changes to students' feelings, social experiences and academic performance since the transition online.

We begin by reviewing literature on personality traits, resilience and online learning in the post-Covid world. We identified a literature gap in how introversion and extroversion influences adaptation and based this inquiry in the context of online learning at the LSE. We then lay out our hypotheses and methodology for surveys, regression analysis and interviews. Next, we present the empirical findings of our surveys. In the following section, we analyse the findings, complemented by quotes from interviews, and discuss our limitations. We finally conclude by summarising our findings, explaining the implications and areas for further research.

This study aims to support the extant literature on the 'new normal', specifically, the impacts of online learning on students. Higher education will continue to be affected by the aftermath of the pandemic, therefore we must understand how Covid affects students in under researched realms, like personality. This can inform LSE's improvements to teaching, wellbeing and networking services. While there are limitations to this study, it sets out the foundations for future studies on behavioural adaptation and personality.

Literature review:

The higher education sector had the most challenges adapting lectures and classes online (Mishra et al., 2020). In March 2020, The London School of Economics (LSE) moved all lectures and classes onto Zoom. Xiao, et al, (2021) have studied an increase in student burnout, stress and anxiety since this transition. Wallengren-Lynch, et al, (2021) have studied an increase in loneliness from a lack of in-person social life, while Myers, et al, (2020) examined how this decline in students' mental health worsened academic performance. Though many have looked at how social demographics have affected the experiences in online learning (Grooms, et al, 2021), few have looked at the role of personality in adapting to this change.

Many psychologists have emphasised the Big Five Model which theorises extroversion as one of the dominant traits determining personality (McCabe & Fleeson, 2012 ; Saucier & Goldberg, 1996). Though the specific subcomponents are debated (see McCrae & Costa, 2003), extroversion describes spontaneousness, sociability, dominance, assertiveness, and energy. Carl Jung (1971) theorised that one person will always be introverted or extroverted depending if they have higher or lower levels of extroversion. Introverts and extroverts have different ways of perceiving the world and adapting to social change (Fleeson, 2012). Evolutionary psychologists speculate that extroverts adapt better during periods of change due to their openness and dominance (Janowsky, et al, 2002; Howrey, et al, 2009). This forms the basis of our hypothesis.

Resilience is defined as "the ability to adapt to change and emerge in a more positive afterward state" (Plodinec, 2013; Norris, et al, 2008; Paton & Johnston, 2006). 'Resilience' in the 'new normal' of online learning involves students positively adapting to this change. This can be measured by assessing if perceptions about the *university* experience have improved compared to the pre-pandemic context. General components of comparison include: feelings, social experiences and academic performances. Resilience is therefore a positive adaptation of feelings, social experiences and academic performances to the new context of online learning, which has implications for an improved state of wellbeing.

Our research aims to support existing literature on personality-based behavioural outcomes. We hope our findings pose an inquiry into the status quo and find something new about how introverts and extroverts behave. At most, we hope our findings inform the LSE with a new perspective to planning to improve wellbeing, networking and teaching services.

Hypothesis:

Extroverted students are more likely to positively adapt to online learning than introverts.

Methodology:

Our aim is to determine how extroverted or introverted LSE students adapt to online learning. We focus on the student's perceptions of the differences between online learning and in-person learning, more specifically their feelings, social experiences and academic performances. For doing so, we used surveys and quantitative analysis to base our main findings, supported by semi-structured interviews.

Survey

We conducted an online survey on Google Forms to collect a large number of responses within LSE. Our sample comprises a wide range of LSE students, both undergraduate and postgraduate. To get a more representative and diverse sample, we sent the survey to undergraduate and postgraduate students and distributed the survey to various society, department and social media group chats. In general, there were limited access issues and gatekeepers to access LSE students; utilising our own contacts through snowball sampling proved fruitful. Introducing the survey, we informed students of our research title. We reassured them of the anonymity and confidentiality of their responses. By filling in the survey, they consent to our usage of their data; this is clarified at the outset.

In the first section, we categorised the students as extroverts or introverts. Mischel (1972) states that questions asking about an individual's specific reactions in contexts are more likely to accurately predict behaviour and personality than general questions about their dispositions. Building onto these observations and personality questions designed by Grant (2006), our survey asked direct and context related questions. In addition to the 10 extroversion questions designed by Grant (2006), we added one more question to aid the categorical dividing between introvert and extrovert. In our regression, introversion is a dummy variable taking value 1 if the individual is introverted and 0 otherwise. Having 6 or more "introverted" answers categorises a respondent as introvert and less than 6 categorises as extrovert.

In the next section, we gathered general information about students such as their gender, if English is their native language, and if they are undergraduate or postgraduate students, to control for these variables in the regression and make sure that there is no omitted variable bias. For instance, we controlled for $native\_speaker$ because the language barrier is positively correlated with academic performance. The following part is divided into measuring 3 sections of *university* life: feelings, social experiences and academic performances. We assessed the resilience of LSE students by asking them how strongly they agree or disagree with a statement, using a Likert scale. Each statement presents a positive adaptation to

online learning, such as 'I feel *more* motivated to study when I have online courses'. The outcome y is a dummy that takes value 1 if the student answers "Agree" or "Strongly Agree" and 0 otherwise.

Interviews

We decided to conduct semi-structured interviews to support our statistical analysis. Alsaawi (2014) identifies interviews as a useful way to contextualise quantitative data. Semi-structured interviews allow interviewees to be open about their feelings, social experiences and academic performance, which gives us an insight into unexplored themes. Interviews supplement our survey data because they allow a detailed, personal insight which is often ignored by quantitative methods. With each participant's consent, we used their survey responses to the personality questionnaire to contextualise their interview answers in terms of introversion or extroversion. There is a possibility we misinterpret the interviewees' responses on this basis, therefore we approached responses with open considerations and reflections. We quote relevant aspects of our interviews in the findings section.

Statistical analysis

We then conducted regression analysis of introversion on positive behavioural adaptations using 'Stata'.

We conducted the following regression model:

$$y = \alpha + \beta_1 introvert + \beta_2 female + \beta_3 native\_speaker + \beta_4 degreeN + \varepsilon$$

where:

y = *dependent variable i.e. column* 1 *of Figure* 1 − *Table of findings*

α = *constant*

β_1 = *coefficient, i.e. ceteris paribus relationship between introvert and y*

$introvert$ = *independent variable, i.e. equal to* 1 *when classified as an introvert from the survey and* 0 *otherwise*

β_2 = *coefficient, i.e. ceteris paribus relationship between the control female and y*

β_3 = *coefficient, i.e. ceteris paribus relationship between the control native speaker and y*

β_4 = *coefficient, i.e. relationship between level of degree* (*under and postgraduate*) *and y*

ε = *error term*

Interpretation: $_1$ captures the effect on y of increasing introvert by one unit, which means it shows the differences in the expected value of y among the two groups (i.e. introvert and extrovert).

Findings and analysis:

We obtained 52 observations and chose a multiple regression model with dummy variables.
Overall, most of our empirical findings confirm our hypothesis and literature review which is shown in the following coefficient table. In particular, we decided to use as proxies the findings with the highest coefficients in each of the 3 aspects we are focusing on, namely, *feelings*, *social experiences*, and *academic performance*. We chose to study 2 proxies in the category *feelings* because they both have lower p-values than all other findings, so that we have more statistically significant results in our findings.

Figure 1- Table of findings

	Introvert	Female	Degree	Native speaker
I feel more motivated to study when I have online courses.	-0.144 (p=0.223)	0.197	0.045	-0.136
I am confident to turn on my camera and unmute myself during Zoom meetings.	0.0117 (p=0.933)	-0.089	-0.261	0.177
I don't feel lonely when taking online classes/ lectures.	-0.193 (p=0.169)	-0.076	0.131	-0.243
I enjoy breakout rooms in the Zoom meetings.	-0.110 (p=0.292)	-0.242	-0.104	-0.006
I am more willing to make friends at LSE and reach out to more people online.	-0.041 (p=0.775)	-0.005	0.285	0.086
I feel more at ease attending online networking events.	0.042 (p=0.754)	-0.113	-0.105	-0.008
I feel more included within the LSE community with online learning.	0.154 (p=0.147)	0.105	-0.179	0.043
I understand the content of my courses better online.	0.087 (p=0.536)	0.153	0.488	-0.057

I can get higher grades through online studies.	0.076 (p=0.580)	-0.071	0.346	-0.031
I am more willing to ask questions online.	-0.063 (p=0.655)	-0.021	0.263	0.122
Online learning has encouraged me to become more productive.	-0.049 (p=0.660)	-0.008	0.057	-0.002

In this section, we use interview quotations to complement our results from the regression model.

1) Feelings

a) Motivation to study during online learning

From the regression of the variable *"introversion"* on *"motivation" (Fig. 1)*, empirical evidence shows that the likelihood of being more motivated to study during online learning decreases by 14% when an individual is introverted relative to extroverted (β_1 = -0.144). This means that introverted individuals are less likely to be motivated to study during online learning compared to extroverts, confirming our hypothesis.

Our interview also confirms this. Indeed, one introvert O mentioned difficulties in maintaining attention in an online setting because only a few turned on the camera:

> *"If you had cameras turned on, you will stay focused and seated in front of your laptop during a Zoom call (...) but if only very few students have their camera turned on, I don't necessarily feel comfortable doing it."*

b) Loneliness during online learning

From the regression of the dummy variable *"introversion"* on the dependent variable *"feelings"*, more specifically, *"loneliness"* (*Fig. 1*), empirical evidence shows that the likelihood of not being lonely during online learning decreases by 19% when the individual is introverted relative to extroverted (β_1 = -0.193). In other words, introverted people are more likely to feel lonely during online learning.

Interestingly, our introverted interviewees felt the opposite. Introvert B said he felt less lonely during online learning, as he had more opportunities to see his existing friends often.

> *"In fact, I think in some sense, if you're very happy with the friends group you have, especially over the pandemic, it was so much easier to get tighter and you were almost forced to meet up more often."*

Introvert B might be a particular example in this case. This makes us consider other factors affecting loneliness. Typically, introverts prefer a more intimate setting (Holland & Raypole, 2021) that involves a smaller circle of friends but stronger bonds. Such a setting was reinforced by the pandemic. Therefore, some controlled factors need to be taken into account, such as their living situation and their group of friends before the pandemic. Out of time constraints, we did not include these controls in our regression.

Given the regression results from a) and b) we found that introverts are less positively adapted emotionally to online learning than extroverts, confirming our hypothesis.

2) Social - inclusion in the LSE community during online learning

From the regression of the dummy variable *"introversion"* on the *"feeling of inclusion of students" (Fig. 1)*, we found that the likelihood of feeling more included in the LSE community during online learning increases by 15.4% when the individual is introverted relative to extroverted ($\beta_1 = 0.154$). In other words, introverted students are more likely to feel more included in LSE during online learning than extroverts.

This surprising result is also supported by the interview. One extroverted interviewee stated that he struggles during online learning and strongly prefers interacting with people in-person.

> "*But if I had the option between seeing some people in person and social events online, I would probably take the in-person one."*

Taken together with the data, both methods counter our hypothesis. However, we do not have specific interview data on introverts' sentiments to this change, therefore it is difficult to judge the extent to which this may necessarily be the case.

Apart from that, we noticed an interesting conflict that introverts feel more included in the LSE community while more lonely online compared to extroverts. This suggests that there are other factors affecting the students' adaption, such as their living situation, as was already elaborated above in part 1) b).

3) Academic - the understanding of courses online

From the regression of the dummy variable "*introversion"* on the dependent variable *"understanding the course better during online learning" (Fig. 1)*, empirical evidence suggests that the likelihood of students understanding the course better during online learning increases by 8.7% when the individual is introverted relative to extroverted ($\beta_1 = 0.087$). In other words, introverted students are more likely to better understand the course when it is online.

Results from interviews also support our findings. Indeed, both of our introverted interviewees explained they felt that they could understand the content better online with recorded videos, since they could take better notes and review the lecture.

> *"I am very happy with online lectures as I feel like I was able to pause (...) and take-in a lot more information".*

Hence, they support a hybrid approach to university learning. From the reasoning given by both introverts, the recording aspect was the most valued part of online learning.

On the other hand, the extroverted respondent said that he prefers to be in an environment where he can interact and ask questions, such as in-person lectures and classes. He feels more limited online since it is harder to receive signals online than in-person.

> "*I think I performed better in-person as opposed to online, (...) just generally with the teaching methods."*

Conclusively, this interview finding does not support our hypothesis that extroverted students are more likely to positively adapt to online learning than introverts.

Limitations:

First, due to the small size of our sample, our Stata findings are less statistically significant, suggesting that the association is weaker. Secondly, our findings are based on a poll of 53 individuals, which does not adequately represent the thousands of LSE students. In our sample, there are 19 extroverted individuals and 33 introverted individuals. We collected the data mostly through our friendship circles, making it more likely that responses will be of people with similar personalities to our own, which is reflected in the findings. Thirdly, because of this unequal balance between introverts and extroverts in the sample, the results of extroverts appeared more exaggerated as each response held a large percentage, making comparison less accurate. Fourthly, though we attempt to isolate extroversion or introversion as the only variable influencing online learning outcomes by controlling for gender, language proficiency, and educational degree, nevertheless, there are other aspects that could also be controlled. This could include cultural background, living situation and device quality. Fifthly, our survey measures extroversion using only eleven questions. This may not be sufficient to accurately represent the level of extroversion of a given person, since determining personality is a scientifically complex task. Finally, our data on feelings, social experiences and academic performance was based on students' own perceptions, which are subjective. Should we have had access to empirical data such as students' exact grades, we could have more firmly supported our findings.

Conclusion and implications:

Our objective is to assess how traits of introversion or extroversion influence the adaptation of LSE students to online learning. We tested for positive adaptation in three categories: feelings, social experiences and academic performances, hypothesising that extroverts will perform better. Overall, we do confirm our hypothesis that traits of extroversion adapt more positively to online learning than traits of introversion. This is mainly supported by our regression findings in *Figure 1* and our analysis on motivation.

Our unexpected findings raise inquiries about how introverts and extroverts respond to change on a deeper level. We discovered that introverted students feel more included in the LSE community and understood the course content better online.

We question, therefore, the role of extroverts' dominance and openness as "better" characteristics for adapting to social change. Perhaps, psychologists need to reconsider: firstly, what it means to 'positively adapt' to change, and secondly, that extroversion is not *always* the paradigm for adaptation. In other words, our findings suggest that how "well" introverts or extroverts adapt to change depends on the change itself, and whether it complements characteristics of their trait. For example, introverts flourished socially and academically in the secluded setting of online learning due to their independent and sensitive characteristics, while extroverts remained motivated to study online due to their energy and spontaneity. Therefore, the relativity of adaptation should be highlighted in further research.

Our findings are useful for the ever growing literature analysing the post-Covid world. More specifically, our research has shed a light to an under researched aspect of the 'new normal', and has produced insightful data for helping to improve teaching, wellbeing and networking services at the LSE. We especially emphasise the hybrid system as the ideal method of learning, which was praised as useful by both extroverts and introverts. We hope that research on a wider scale, with access to more connections, time and resources, can explore more deeply the role of personality in the context of the 'new normal'.

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Appendix :

1.0 Ethics and consent form for survey

We appreciate your interest in our project. In this email, we will provide details on the initiative and request your participation. If you consent, please respond to this email with your name and confirmation that you agree to the statements in the table below.

What is this research about?
The goal of this study is to see how the level of extraversion impacts the adaptation of LSE students to the "new" context of online learning.

From the Big Five personality traits (Saucier & Goldberg, 1996), we will be measuring your level of extraversion. This is broadly defined as Spontaneousness, Sociability, Dominance, Assertiveness, and Energy (McCabe & Fleeson, 2012).

By adaptation, we mean how you have changed your behaviour to better 'fit into' this new normal of online learning. This impacts how your feelings, experiences and academic performance has changed from normal in-person classes/ lectures, to the context of online learning.

What role do I play?
Your contribution would be to complete this survey based on your personal experiences. Your response will be collected as an anonymous entry, kept on secure servers, and analysed to see how online learning has impacted LSE students based on their different levels of extraversion.

Do I have to participate?
Participation is entirely optional. If you choose not to participate in this study, there will be no negative effects.

What purpose will my information serve?
At the end of our study programme, we will discuss our findings at an end-of-GROUPS conference, and the research report will be placed on the LSE website. In addition, there is a chance that group members will present the work at other UK conferences, make a blog post about it, etc.

Will my information be kept confidential?
Your participation will be anonymous; your identity will not appear in any reports or publications generated by the project.

This consent form has been read and I have been given the option to ask questions.

I am aware that my replies will be treated confidentially and anonymously, and that my personal information will be maintained securely and discarded at the conclusion of the study.

I consent to take part in the survey.

Survey

Part 1

Personality Quiz
The highlighted yellow are the answers that indicate the introverted answer.

1. You would hate working with someone who's: Brash and overbearing / timid and weak
2. You feel more yourself when you are: the centre of attention / in the background
3. When you meet someone for the first time: you usually do most of the talking / you usually do the most of listening
4. In your free time on the weekend, you would prefer: sharing a deep conversation with a good friend / mingling at a party filled with people you've never met before
5. You usually get more joy out of: watching a great movie / reading a great book
6. You tend to find talking to new people: energising / awkward
7. The people who know you best are more likely to describe you as someone who is: outgoing and talkative / quiet and reflective
8. You are more productive when you are: in a cafe / in a quiet room
9. When working, I prefer to: work in a team / work on my own (the made up question)
10. In general, which of the two are you more likely to feel? Overwhelmed and overstimulated / bored and understimulated
11. You are more likely to recharge your batteries by: Going out with a group of friends / getting some alone time

Part 2

General Information:

What gender do you identify as?
Male Female Non-Binary Transgender Prefer not to say

What year of study are you in?

Which department are you in?

What types of accommodations are you staying in?
Living with family flat en-suite single room twin room others,please type

Are you an English native speaker?
Yes / No

The next section of this survey will present you with individual statements and ask you to tick the option you identify with the most. We are asking you to compare your learning experiences online and offline.

Feelings during online learning compared with offline learning

I feel more motivated to study when I have online courses.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I am confident to turn on my camera and unmute myself during Zoom meetings.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I don't feel lonely when taking online classes/ lectures.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

Social Life during online learning compared with offline learning

I am more willing to make friends at LSE and reach out to more people online.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I feel more at ease attending online networking events .
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I feel more included within the LSE community with online learning.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

Academic Performance during online learning compared with offline learning

I understand the content of my courses better online.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I can get higher grades through online studies.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

Online learning has encouraged me to become more productive.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

I am more willing to ask questions online.
Strongly Agree Agree Neither agree or disagree Disagree Strongly Disagree

LSE has the lowest student satisfaction out of all UK universities. Why do you think LSE has such low student satisfaction? (Please be brief)

How can LSE use online learning to improve your student satisfaction? (Please be brief)

Thank you for your participation!

2.0 Ethics and Consent form for interviews

Thanks for your interest in this project. In this email, I give you information about the project and ask for your consent to participate. If you agree, please reply to this email, stating your name and that you agree to the statements in the table below to give your consent.

What is the study about?

Focused on the broader theme of 'Resilience and the New Normal', this study aims to investigate whether the extroversion or introversion of LSE students has influenced their adaptation to online learning during the Covid pandemic.

What will my involvement be?

Interviewees will answer and respond to a set of questions and/or prompts to understand how their experience of the shift to online learning was affected by their level of extraversion.

Do I have to take part?

Participation is voluntary. There are no negative consequences for you if you decide not to take part in this study. If you decide to take part but then later on you change your mind, you can let me know by - you will not have to give any explanation why. It is also absolutely fine if you feel that you don't want to answer any specific questions – you can just tell me, and we will move on.

What will my information be used for?

Findings from these interviews will be used in a presentation at our end-of-LSE GROUPS research conference, and will also be written up in a research paper which will be hosted on the LSE website.

Will my information be anonymous?

Your participation will anonymous - your name will not be used in any reports or publications resulting from the study.**If you agree to take part in the research, please complete the section below**

Your name: (type first name and surname here)

Please read these three statements. If you agree with the statement, put X in the box next to it.

I have read this message and had the opportunity to ask questions.	
I agree to participate in the interview	
I understand that my responses will be kept confidential and anonymous and that my personal information will be kept securely and destroyed at the end of the study	

Once completed, please email this back to me. Thank you!

Researcher name:

Email address:

If you have any questions about the study, please email H.Sentuc@lse.ac.uk

If you wish to make a complaint about this study, please email eden.groups@lse.ac.uk

The LSE Research Privacy Policy.

2.1 Interview Questions

Feelings:

1. What makes you most uncomfortable on a Zoom call? Tell me of a particular Zoom call or experience in online teaching where you felt very uncomfortable
2. Did you find ways to cope with the awkwardness of online learning? Give examples.
3. How do you feel about the post pandemic way of learning in LSE (with online lectures and in person classes)? How do you think it could be improved?

Academic performance:

1. How do you think your academic performance has been affected by online learning?

2. Overall, are you more satisfied with your learning experience entirely online or in person? Why?
3. Do you feel like you interact more with your teachers when online or in person? Do you find it more useful to ask questions online or in person?
4. Do you think your level of extraversion impacts your experience of online learning?

Social Life:

1. How do you feel about your social life during online learning?
2. How do you feel about attending online events? What kinds? Why?

Final question:
Do you think you are an introvert or extrovert? Why?

3.0 STATA outputs

```
. reg noLoneliness_D Introvert Female i.DegreeN i.NativeS

      Source |       SS       df       MS              Number of obs =      50
-------------+------------------------------           F(4, 45)      =    1.23
       Model |  1.03333591     4  .258333978            Prob > F      =  0.3124
    Residual |  9.46666409    45  .210370313            R-squared     =  0.0984
-------------+------------------------------           Adj R-squared =  0.0183
       Total |        10.5    49  .214285714            Root MSE      =  .45866

------------------------------------------------------------------------------
noLoneline~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Introvert |  -.1933556   .1383127    -1.40   0.169    -.4719316    .0852205
      Female |  -.0763614   .1608997    -0.47   0.637    -.4004302    .2477073
  2.DegreeN |   .1313784   .1675773     0.78   0.437    -.2061397    .4688965
            |
     NativeS |
         Yes |  -.2437302   .1414242    -1.72   0.092    -.5285731    .0411127
       _cons |   .5116412   .2535165     2.02   0.050     .0010328    1.02225
------------------------------------------------------------------------------
```

```
. reg Motivated_D Introvert Female NativeS DegreeN

      Source |       SS       df       MS              Number of obs =      50
-------------+------------------------------           F(4, 45)      =    1.03
       Model |  .620086342     4  .155021586            Prob > F      =  0.4012
    Residual |  6.75991366    45  .150220304            R-squared     =  0.0840
-------------+------------------------------           Adj R-squared =  0.0026
       Total |        7.38    49  .150612245            Root MSE      =  .38758

------------------------------------------------------------------------------
  Motivated_D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   Introvert |  -.1443798   .1168784    -1.24   0.223    -.3797849    .0910253
      Female |   .1966036   .1359651     1.45   0.155    -.0772441    .4704514
     NativeS |   .1162594   .1195076     0.97   0.336    -.1244413    .3569602
     DegreeN |   .0454002   .1416079     0.32   0.750    -.2398127    .3306131
       _cons |  -.1361686   .3865198    -0.35   0.726    -.9146594    .6423221
------------------------------------------------------------------------------
```

```
. reg CameraUnmute_D Introvert Female i.DegreeN i.NativeS
```

Source	SS	df	MS	Number of obs	=	50
				F(4, 45)	=	1.28
Model	1.07478972	4	.268697429	Prob > F	=	0.2909
Residual	9.42521028	45	.209449117	R-squared	=	0.1024
				Adj R-squared	=	0.0226
Total	10.5	49	.214285714	Root MSE	=	.45766

CameraUnmu~D	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Introvert	.0116912	.1380095	0.08	0.933	-.2662743	.2896567
Female	-.0895857	.1605471	-0.56	0.580	-.4129441	.2337727
2.DegreeN	-.2610964	.16721	-1.56	0.125	-.5978747	.0756819
NativeS						
Yes	.1773336	.1411142	1.26	0.215	-.106885	.4615521
_cons	.4683814	.2529608	1.85	0.071	-.0411078	.9778705

```
. reg  Breakoutrooms_D Introvert Female i.DegreeN i.NativeS
```

Source	SS	df	MS	Number of obs	=	50
				F(4, 45)	=	1.60
Model	.748122171	4	.187030543	Prob > F	=	0.1917
Residual	5.27187783	45	.117152841	R-squared	=	0.1243
				Adj R-squared	=	0.0464
Total	6.02	49	.122857143	Root MSE	=	.34228

Breakoutro~D	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Introvert	-.1100476	.1032158	-1.07	0.292	-.317935	.0978397
Female	-.2427362	.1200714	-2.02	0.049	-.4845724	-.0009
2.DegreeN	-.1045978	.1250546	-0.84	0.407	-.3564706	.147275
NativeS						
Yes	-.0061777	.1055377	-0.06	0.954	-.2187416	.2063862
_cons	.477193	.1891866	2.52	0.015	.0961517	.8582344

```
. reg  IncludedLSE_D Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      1.24
       Model |  .599145494         4  .149786374   Prob > F        =    0.3062
    Residual |  5.42085451        45  .120463433   R-squared       =    0.0995
-------------+----------------------------------   Adj R-squared   =    0.0195
       Total |        6.02        49  .122857143   Root MSE        =    .34708

------------------------------------------------------------------------------
IncludedLS~D | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
  Introvert  |   .1545425   .104664     1.48   0.147    -.0562617    .3653467
     Female  |   .1045114   .1217561    0.86   0.395     -.140718    .3497407
  2.DegreeN  |  -.1789758   .1268092   -1.41   0.165    -.4343826     .076431
             |
    NativeS  |
        Yes  |   .0433371   .1070185    0.40   0.687    -.1722093    .2588835
      _cons  |   .8026662   .1918411    4.18   0.000     .4162785    1.189054
------------------------------------------------------------------------------
```

```
. reg  WillingFriends_D Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      0.81
       Model |  .731334938         4  .182833734   Prob > F        =    0.5250
    Residual |  10.1486651        45   .22552589   R-squared       =    0.0672
-------------+----------------------------------   Adj R-squared   =   -0.0157
       Total |       10.88        49  .222040816   Root MSE        =     .4749

------------------------------------------------------------------------------
WillingFri~D | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
  Introvert  |  -.0410922   .1432082    -0.29   0.775    -.3295284    .2473441
     Female  |  -.0053589   .1665948    -0.03   0.974    -.3408979    .3301802
  2.DegreeN  |   .2854023   .1735087     1.64   0.107    -.0640621    .6348668
             |
    NativeS  |
        Yes  |   .0856598   .1464298     0.58   0.561     -.209265    .3805847
      _cons  |   .0739732   .2624896     0.28   0.779    -.4547081    .6026544
------------------------------------------------------------------------------
```

```
. reg  UnderstandContent_D Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      2.66
       Model |  2.25135195         4  .562837988   Prob > F        =    0.0448
    Residual |  9.52864805        45  .211747734   R-squared       =    0.1911
-------------+----------------------------------   Adj R-squared   =    0.1192
       Total |       11.78        49  .240408163   Root MSE        =     .46016

------------------------------------------------------------------------------
Understand~D | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
  Introvert  |   .0866197   .1387648     0.62   0.536    -.1928669    .3661063
     Female  |   .1537737   .1614256     0.95   0.346    -.1713542    .4789016
  2.DegreeN  |   .4877288   .1681251     2.90   0.006     .1491075     .82635
             |
    NativeS  |
        Yes  |  -.0573507   .1418864    -0.40   0.688    -.3431246    .2284232
      _cons  |  -.1472958   .2543451    -0.58   0.565     -.659573    .3649815
------------------------------------------------------------------------------
```

```
. reg  WillingQs_D Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      0.91
       Model |  .78247954         4  .195619885   Prob > F        =    0.4686
    Residual |  9.71752046        45  .215944899   R-squared       =    0.0745
-------------+----------------------------------   Adj R-squared   =   -0.0077
       Total |        10.5        49  .214285714   Root MSE        =     .4647

------------------------------------------------------------------------------
  WillingQs_D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   Introvert  |  -.0630826   .1401333    -0.45   0.655    -.3453255    .2191604
      Female  |  -.0212899   .1630176    -0.13   0.897    -.3496242    .3070445
   2.DegreeN  |   .2628888   .1697831     1.55   0.129     -.079072    .6048496
              |
     NativeS  |
         Yes  |    .122146   .1432857     0.85   0.398    -.1664462    .4107382
       _cons  |   .0774146   .2568534     0.30   0.765    -.4399148     .594744
------------------------------------------------------------------------------
```

```
. reg HigherGrades_D  Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      1.50
       Model |  1.23516193        4  .308790481   Prob > F        =    0.2183
    Residual |  9.26483807        45  .205885291   R-squared       =    0.1176
-------------+----------------------------------   Adj R-squared   =    0.0392
       Total |        10.5        49  .214285714   Root MSE        =     .45375

------------------------------------------------------------------------------
 HigherGrad~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   Introvert  |   .0763341   .1368304     0.56   0.580    -.1992564    .3519246
      Female  |  -.0713028   .1591753    -0.45   0.656    -.3918984    .2492928
   2.DegreeN  |   .3458373   .1657814     2.09   0.043     .0119365    .6797382
              |
     NativeS  |
         Yes  |  -.0308726   .1399085    -0.22   0.826    -.3126627    .2509176
       _cons  |    .044529   .2507995     0.18   0.860     -.460607     .549665
------------------------------------------------------------------------------
```

```
. reg Productive_D Introvert Female i.DegreeN i.NativeS

      Source |       SS           df       MS      Number of obs   =        50
-------------+----------------------------------   F(4, 45)        =      0.09
       Model |  .047401591        4  .011850398   Prob > F        =    0.9854
    Residual |  5.97259841        45  .132724409   R-squared       =    0.0079
-------------+----------------------------------   Adj R-squared   =   -0.0803
       Total |        6.02        49  .122857143   Root MSE        =     .36431

------------------------------------------------------------------------------
 Productive_D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   Introvert  |  -.0486255   .1098614    -0.44   0.660    -.2698978    .1726468
      Female  |   -.008334   .1278023    -0.07   0.948    -.2657409     .249073
   2.DegreeN  |   .0567548   .1331063     0.43   0.672     -.211335    .3248445
              |
     NativeS  |
         Yes  |  -.0017582   .1123329    -0.02   0.988    -.2280082    .2244917
       _cons  |   .1328683   .2013675     0.66   0.513    -.2727067    .5384432
------------------------------------------------------------------------------
```