FACTORS ASSOCIATED WITH TEACHER PREPAREDNESS AND CAREER SATISFACTION IN FIRST YEAR TEACHERS

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Factors Associate with Teacher Preparedness and Career Satisfaction in First Year Teacher

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MASTER OF SCIENCE

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ABSTRACT

The objective of this study is to determine the potential association between teaching state, subject taught, perceived preparation given by teacher preparedness programs, and perceived support from administration and colleagues, and overall happiness of teachers and their satisfaction with the university education program they attended. We use generalized Fisher's exact tests, two-sample t-tests, linear regression, logistic regression to accomplish this objective. State and subject have very little effect on teacher satisfaction. Teacher support systems are associated with both the way a teacher perceives they were prepared, as well as the satisfaction they experience in their career. How well a teacher feels they were is also associated with teacher satisfaction.

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CHAPTER 1. INTRODUCTION

In 2018, there were 82,621 Bachelor's level education degrees awarded in the United States, and that number is expected to continue to rise as more and more students are enrolling in college every year (EducationData, 2020). This means that every year universities are teaching more and more future educators, training them for a career in one of the most under-appreciated occupations in America. One of the main responsibilities of these universities is to help students feel prepared for the many challenges they will face as they venture out into public and private schools across the country. Evaluations of these teachers reflect the programs of the colleges that awarded these students their degrees. Because of this, groups like NExT (the Network for Excellence in Teaching) are arising to help evaluate these programs. These groups search for ways that colleges and universities can better themselves, and therefore better help the students they teach.

NExT is comprised of 14 institutions of higher learning throughout Minnesota, North Dakota, and South Dakota. Using funding and technical support from the Bush Foundation, they aim to use data collected from a series of surveys to help shape and reform their education programs. This series of surveys begins by giving every student who is an education major an Entry Survey, which gauges demographic information as well as a few basic self-evaluation questions. Just before graduation, students are asked to fill out an Exit Survey (ES). This survey asks the soon-to-be graduates to evaluate their teacher preparation program, typically after they have had some experience as a student teacher. One year after graduation, the new teachers are once again asked to complete a survey, the Transition to Teaching Survey (TTS), at the same time their school administrators are asked to complete a Supervisor Survey (SS) to evaluate the new teachers.

The purpose of this study is to use answers provided from the TTS to determine if certain factors such as the subject they teach, the state in which they teach, and even answers to other parts of the survey, are associated with how well these teachers feel they were prepared and their satisfaction in their choices. Using the results from the analyses performed, we hope to gain some understanding of what factors should be considered when evaluating the teacher preparation programs of universities. As mentioned earlier, much of the burden falls on the institutions from which the alumni graduated; however, it is possible that there are other circumstances which play a large part in the success of a new teacher.

The rest of this thesis is organized as follows. Chapter 2 presents a literature review related to the objectives of the current study. Chapter 3 provides a description of the data used in this study and outlines the methods used in the analysis. Chapter 4 offers a summary of the analysis that was performed. Finally, chapter 5 provides conclusions based on the findings that have been made through this study.

CHAPTER 2. LITERATURE REVIEW

Numerous studies have been conducted on the effectiveness of teacher education programs throughout the world. These studies have many objectives, but we will focus on the studies that investigate teacher preparedness programs, specifically in how well the institutions that trained these teachers did in preparing them for teaching in secondary schools.

One of the main methods for evaluating schools, and consequently teachers, is through standardized tests. Most of these standardized tests are administered to assess student understanding of math, science, and English. Therefore, it follows logically that teachers in these subject areas might feel as if they are under more pressure than their peers who teach other subject areas such as art, music, or health. One study found that having to prepare students for standardized tests caused the teachers to have more indications of burn-out and feel less enthusiastic about their jobs (Huk, et al. 2011). However, another study found that there was no difference in perceived preparedness among teachers of different subjects (Cochran et al. 2015). These two findings seem to contradict each other.

There has been a strong link found between self-efficacy and job satisfaction for educators, meaning that those teachers who enjoy their jobs the most are also the ones who feel the most prepared to do their jobs well (Aldridge et al. 2015). This thesis will attempt to shed more light on this matter and try to determine if the subject that new educators are teaching relates to how well they feel they are prepared to teach that subject.

Another variable of interest in this thesis is the perceived level of support new teachers receive by their school administrations, as well as other staff. Many studies have explored the effect that a teacher's professional surroundings have on job satisfaction and self-efficacy, and most have found that when a teacher, especially a new teacher, is surrounded by helpful colleagues and a supportive administration, that teacher is far more likely to be content in their job and their school (Weiqi, 2007; Huang et al. 2009; Skaalvik et al. 2009; Huk 2011; Skaalvik et al. 2011). A good support system also encourages lower turnover rates (Pyhalto et al. 2011). Additionally, when teachers feel they have a strong foundation in their school system it seems to help strengthen the link between a teacher's self-efficacy and their career satisfaction (Edinger et al. 2018).

One survey from 2006 asked teachers in North Carolina to rank the features they believed to affect the different aspects of a teacher's work. Of the 62,778 respondents to this survey, 36.4% indicated that leadership was the most important trait of a school for retaining its teachers; 19.8% indicated that empowering educators was most important; and another 19% believed that facilities and resources provided to the teachers was of greatest importance for job satisfaction and teacher retention (Stallings, 2020). This survey shows that teachers believe that without the support from their administrative staff and their fellow teachers they would be far more likely to burn-out, leading them to either leave the school in search of the support they require, or even leave the field of teaching altogether. It's clear that when a new teacher enters a school, the support they receive heavily influences their job satisfaction, their confidence in being able to do their job well, and their likelihood of wanting to remain at their job.

Much has been shown linking self-efficacy, preparedness, support systems, and even subject matter. This study hopes to build on the current body of work by determining if subject matter, self-efficacy, and support systems are linked in any way, as well as determining if any or all of those change how the new teachers feel about the program from which they graduated.

CHAPTER 3. METHODOLOGY

3.1. Data Description

There were 199 middle school and high school teachers who responded to this survey. Only 1 of them did not respond fully to the items of interest on this study. Therefore they were excluded, and we were left with 198 surveys as our sample size.

The TTS is the survey this study will focus on. It generally has very good response rates (between 60-80%) and for the school schools, totaling five years, considered in this study there was a 77% response rate. The survey has been refined and tweaked over the years, the last time being in 2016. Therefore, this study only used surveys from 2016-2019. Due to the confidential nature of the surveys, the data was stripped of all identifiers prior to being provided by NExT for the purposes of this study. NExT also requires that the specifics of the survey questions are not disseminated. Therefore this study will only refer to questions and sections in general terms.

An exploratory factor analysis was performed to test the validity and reliability of the Transition to Teaching Survey (TTS) data for Parts B, C, and D. The following sections were included: Part B "Your teacher preparation," Part C "Your school context," and Part D "Program recommendation." Assumptions of sampling adequacy (KMO) and normal distribution across samples (Bartlett's Test) were both met for all parts of the TTS. However, the determinant was lower than ideal for Part B, which indicates potential problems with collinearity, indicating that some variables are highly correlated and are likely redundant. This analysis does indicate that the survey and its sections are high-quality instruments.

In the TTS, the teachers are asked a series of questions. Among other things, the survey asks what subject the respondents are teaching, what school they are teaching at, how well the participant feels their alumni prepared them for teaching in various aspects, and how well they feel they are being supported by the administration and other faculty there, and the overall satisfaction they receive, both from the career path they have chosen as well as the institution where they received their education.

The variables of interest from this survey were the items in section B1 regarding teacher preparedness (21 items), section C regarding teacher support (11 items), section D regarding satisfaction with teaching and teacher preparation program (4 items), the state in which they teach, school type, and subject that they teach. Responses to all items in sections B1, C, and D were on a Likert scale (1 = Disagree, 2 = Tend to Disagree, 3 = Tend to Agree, and 4 = Agree). It should also be known that the survey was designed to be used in totality, as there are factors within it meant to work together. This is important to keep in mind, as the results of the study are presented, that often when a single item within a section is found to be significant or insignificant, it still is a part of a larger factor.

Because most (88.4%) of the teachers responded that they were currently employed in either Minnesota or North Dakota comparisons by state are limited to the responses of teachers employed in these two states. . Additionally, 160 (81%) of the respondents were teaching in traditional public schools, 18 were employed at public charter schools, 10 taught at private schools, and the final 10 marked “other.” Due to these heavily unbalanced data, school type was not considered as a possible effect when conducting the analysis. Finally, subject matter was simplified into two categories. English, science, and math belong to the first category (labelled “ESM”) because those are typically the three subjects that are tested on standardized tests. All other subjects were put into category 2.

Due to the low number of “Disagree” and “Tend to Disagree” answers (which is a good thing for the teachers and the institutions!) we also performed additional analysis with the negative answers “Disagree” and “Tend to Disagree” grouped together and coded as “0”, and the positive answers “Agree” and “Tend to Agree” grouped and coded as “1.” This data will be referred to as the “combined” data hereafter.

3.2. Analysis

A series of generalized Fisher’s exact tests (Mehta et al. 1986) were performed on the original data to determine if the distributions of responses differed significantly by subject or state for items in sections B1, C, and D. These tests were used as an alternative to the Chi-square test because many of the expected cell counts were below the standard guideline of five for the Chi-square test.

Independent two sample t-tests were also performed to determine if the mean response differed significantly by subject or state. In these analyses, responses were treated as numerical. Fligner-Killeen tests (Fligner et al. 1976) were performed to check the equivalence of variance between ND and MN samples, as well as between ESM and non-ESM samples. Fligner-Killeen tests were used because the data show departures from normality (Garrett et al. 2001). For many survey items as well as the means of sections B1, C and D the variance between samples being compared were significantly different, especially between MN and ND. Thus the un-pooled t-tests were used throughout.

Linear and logistic regression models were constructed to investigate associations among survey items. Four types of dependent variables were considered for the linear models. (1) the average response to section B1, (2) the individual responses to section B1, (3) the average response to section D, and (4) the individual responses to section D. For those models where the dependent variable was an individual answer to either section B1 or section D, a logistic regression model was also created and fit to the combined data.

For all models with more than one independent variable, both linear and logistic, variance inflation factors (VIF's) were calculated. A VIF greater than 5 indicates a problem with multicollinearity (Hair et al. 2010). Among all the models and variables considered, none of them had a VIF greater than 5. Therefore, it was concluded that there was no problem with multicollinearity in any of the final models used in this study.

CHAPTER 4. RESULTS

4.1. Summary Statistics

Of the 198 respondents included in this study, 102 were teaching in Minnesota and 73 were teaching in North Dakota. There were 77 teachers teaching either science, math, or English which constitutes about 39% of the sample. See Table 4.1 for a breakdown of the respondents by state and subject taught.

Table 4.1: Cross Table for State and Subject

	Minnesota	North Dakota	Other	Row Total
ESM	38	29	10	77
Other	64	44	13	121
Column Total	102	73	23	Total: 198

Tables 4.2, 4.3, and 4.4 give the mean and standard deviation for the respondents' answers to section B1, C, and D respectively.

Table 4.2: Mean and Standard Deviation for section B1

Variable	**B1a_lic**	**B1b_strat**	**B1c_pers**	**B1d_prior**	**B1e_long**	**B1f_adjust**
Mean	3.54	3.47	3.38	3.3	3.17	3.27
St. Dev.	0.58	0.66	0.73	0.73	0.80	0.76
Variable	**B1g_clear**	**B1h_mod**	**B1i_fdbk**	**B1j_self**	**B1k_assess**	**B1l_rel**
Mean	3.52	3.30	3.29	3.06	3.52	3.18
St. Dev.	0.59	0.74	0.73	0.81	0.66	0.79
Variable	**B1m_lrnnds**	**B1mm_diff**	**B1n_tech**	**B1o_tools**	**B1p_crit**	**B1q_cmplx**
Mean	3.19	3.10	3.22	3.18	3.26	3.16
St. Dev.	0.81	0.82	0.83	0.84	0.74	0.77
	B1r_intdsc	**B1s_glbl**	**B1t_concl**	**All B1**		
Mean	3.08	3.04	3.08	3.25		
St. Dev.	0.90	0.87	0.86	0.55		

Table 4.3: Mean and Standard Deviation for section C

Var.	**C1a**	**C1b**	**C1c**	**C2a**	**C2b**	**C2c**	**C2d**	**C3a**	**C3b**	**C3c**	**C3d**	**All C**
Mean	3.57	3.51	3.50	3.43	3.23	3.33	3.52	3.06	3.34	3.33	3.33	3.38
S.D.	0.70	0.64	0.64	0.81	0.90	0.78	0.74	1.02	0.87	0.79	0.78	0.52

Table 4.4: Mean and Standard Deviation for section D

Variable Name	**D1b**	**D1c**	**D1e**	**D1f**	**All D**
Mean	3.46	3.33	3.52	3.36	3.42
St. Dev.	0.78	0.91	0.72	0.77	0.64

Figures 4.1 through 4.3 below illustrate the different answers that teachers gave for each relevant item in the survey. As we can see, most items have around 80% or more of their answers as either "Agree" or "Tend to Agree."

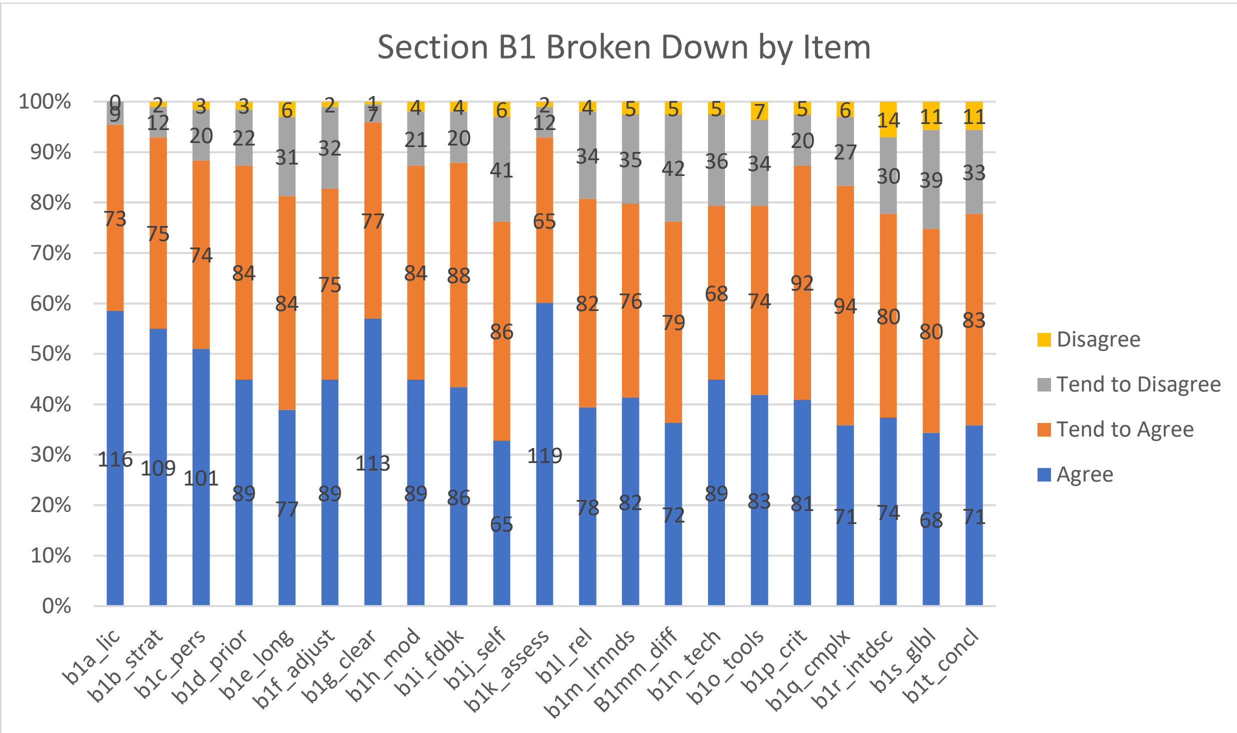

Figure 4.1: Stacked bar chart for counts of ach answer in section B1

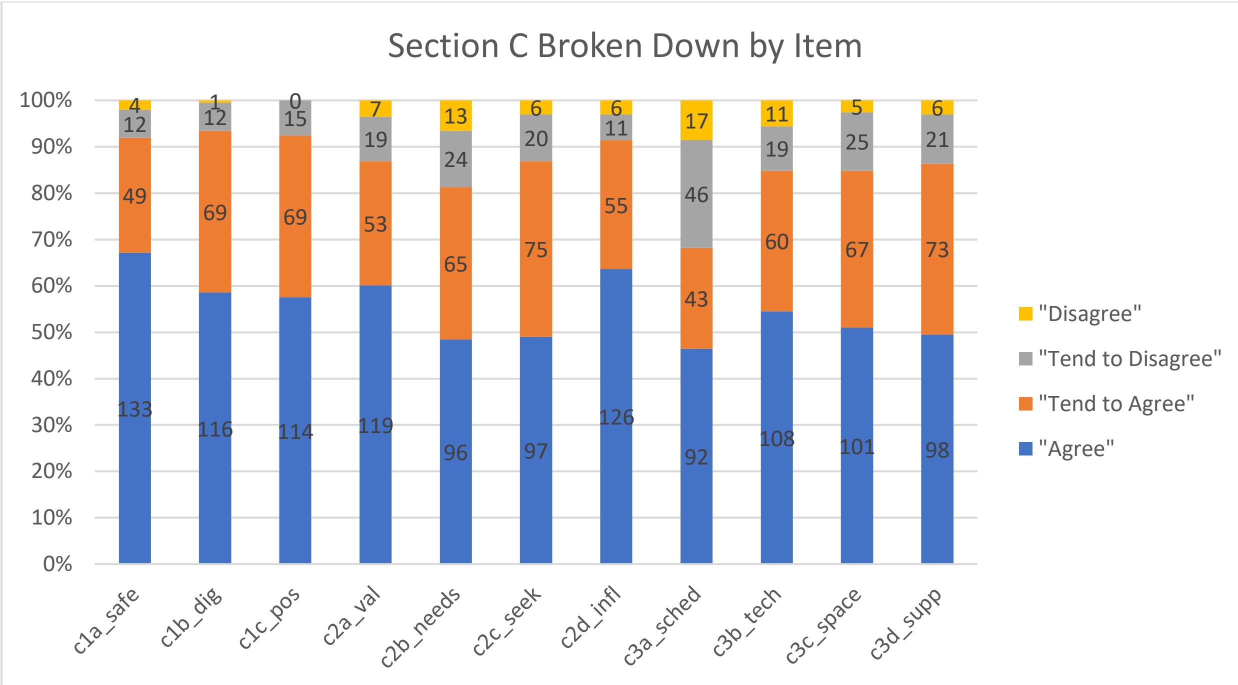

Figure 4.2: Stacked bar chart for counts of each answer in section C

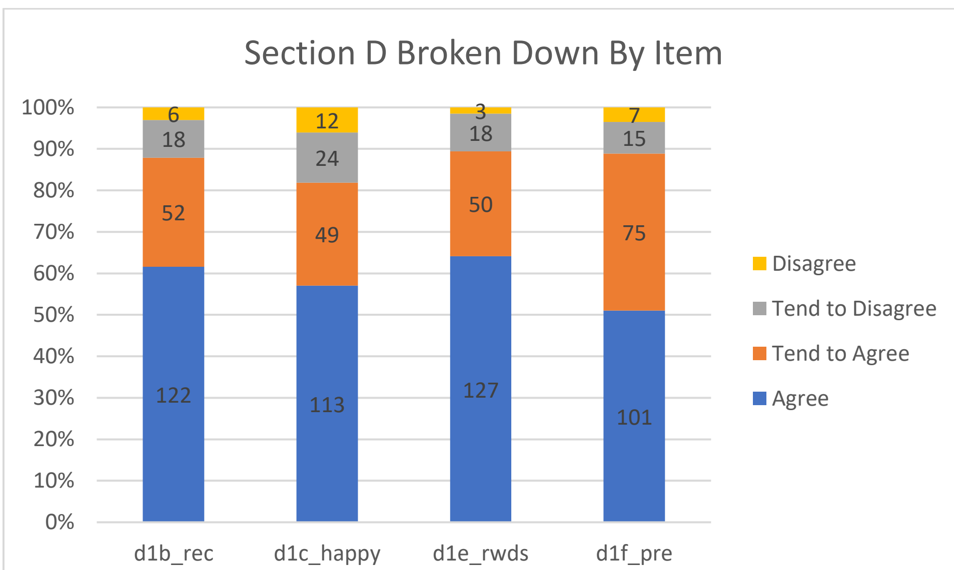

Figure 4.3: Stacked bar chart for counts of each answer in section D

Figures 4.4, 4.5 and 4.6 show the means of the three sections of interest for this study as well as the average for each item within the sections. Section B1 has the lowest mean at 3.253, then section C at 3.378, and section D has the highest mean at 3.419. The standard errors for all three are roughly the same (0.55, 0.52, and 0.64 respectively).

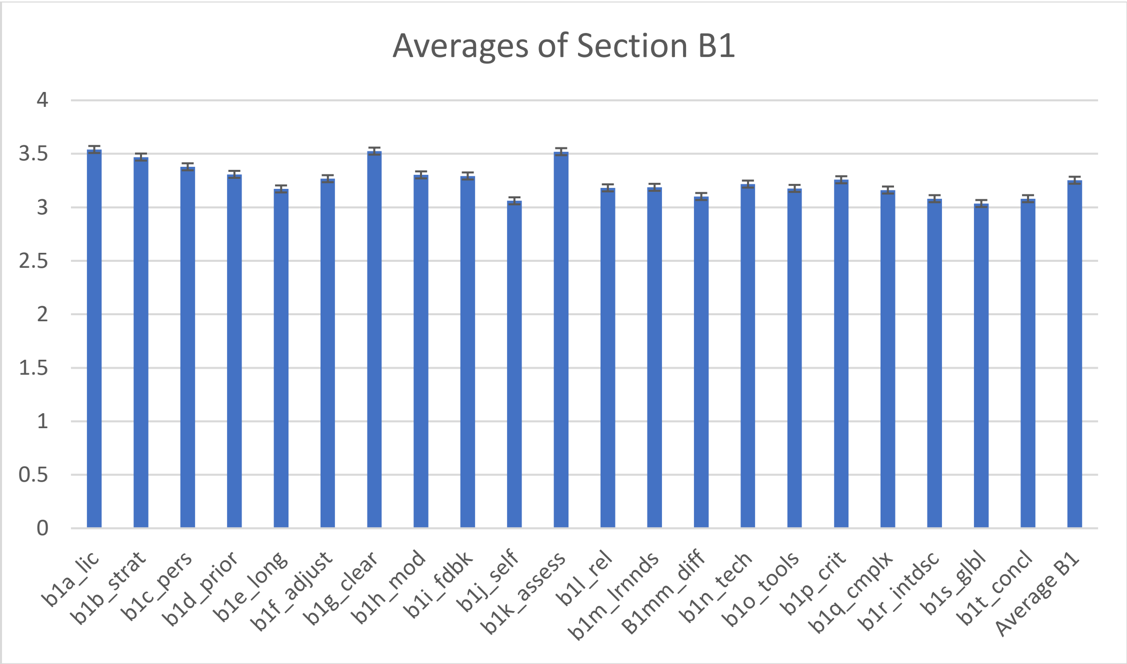

Figure 4.4: Bar graph for mean of section B1 with standard deviation bars

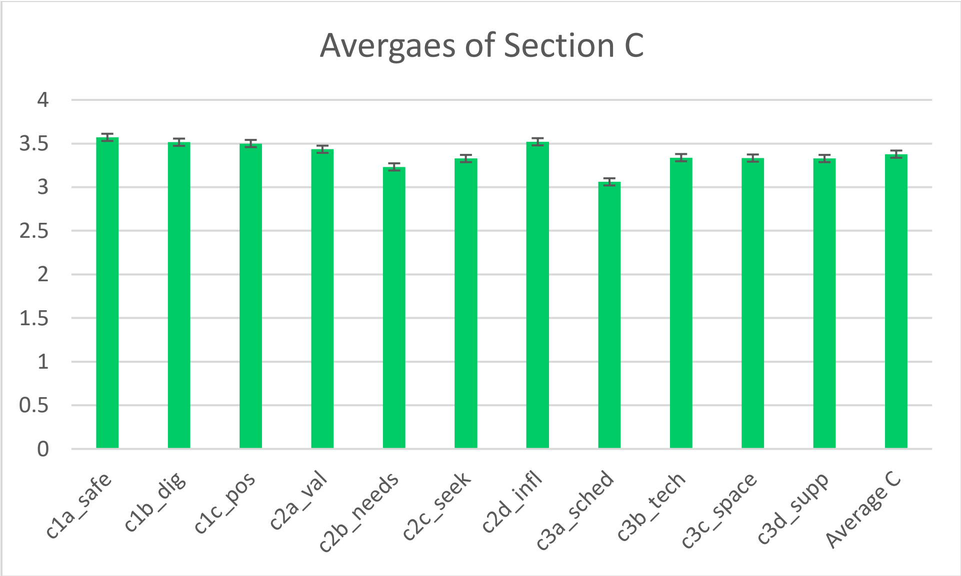

Figure 4.5: Bar graph for mean of section C with standard deviation bars

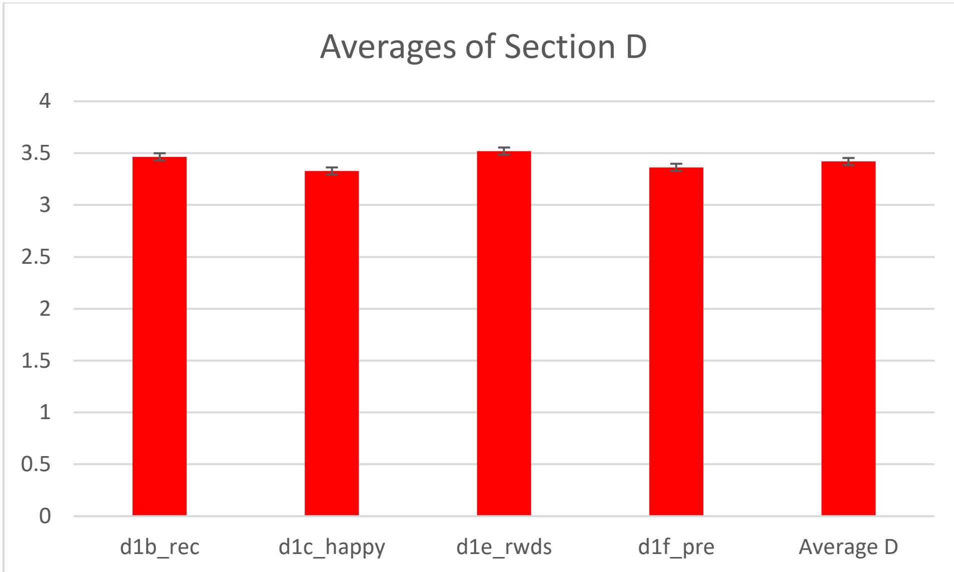

Figure 4.6: Bar graph for mean of section D with standard deviation bars

4.2. State and Subject Comparisons

The first preliminary analysis performed was a series of generalized Fisher's Exact Tests. Two tests were performed for each individual item in sections B1, C, and D. One test to determine if there was a difference in the distribution of responses between the North Dakota and Minnesota teachers, and another to test for a difference in the distribution of responses between ESM teachers and teachers of other subjects. Similarly, independent two-sample t-tests were executed to test for differences in average response between State and Subject. Once again, two tests were performed for each item in each section.

Of the 144 tests done, only eight Fisher tests (five state comparisons and three subject comparisons) and nine t-tests (seven state comparisons and two subject comparisons) were significant at the 0.05 level. The results to all 144 of the Fisher's Exact Tests and T-tests can be found in tables 4.5 through 4.8. The tests that had p-values below the 0.05 significance level are highlighted in the tables. There were only six of these items that the Fisher's exact test and t-test agreed were significant in the same population test. These six are highlighted blue while the other significant results are highlighted orange.

Table 4.5: Fishers Exact Test results for all items in section B1, C, and D for MN vs. ND

Item	**B1a**	**B1b**	**B1c**	**B1d**	**B1e**	**B1f**	**B1g**	**B1h**	**B1i**	**B1j**	**B1k**	**B1l**
p-value	0.021	0.327	0.12	0.92	0.35	0.72	0.69	0.38	0.16	0.82	0.046	0.068
Item	**B1m**	**B1mm**	**B1n**	**B1o**	**B1p**	**B1q**	**B1r**	**B1s**	**B1t**	**C1a**	**C1b**	**C1c**
p-value	0.427	0.838	0.06	0.33	0.52	0.29	0.21	0.34	0.004	0.34	0.007	0.174
Item	**C2a**	**C2b**	**C2c**	**C2d**	**C3a**	**C3b**	**C3c**	**C3d**	**D1b**	**D1c**	**D1e**	**D1f**
p-value	0.618	0.299	0.12	0.47	0.66	0.92	0.84	0.14	0.073	0.58	0.639	0.018

Table 4.6: Fishers Exact Test results for all items in section B1, C, and D for ESM vs. Not ESM

Item	**B1a**	**B1b**	**B1c**	**B1d**	**B1e**	**B1f**	**B1g**	**B1h**	**B1i**
p-value	0.49	0.670	0.29	0.004	0.016	0.61	0.03	0.89	0.43
Item	**B1j**	**B1k**	**B1l**	**B1m**	**B1mm**	**B1n**	**B1o**	**B1p**	**B1q**
p-value	0.62	0.55	0.68	0.44	0.051	0.91	0.99	0.86	0.31
Item	**B1r**	**B1s**	**B1t**	**C1a**	**C1b**	**C1c**	**C2a**	**C2b**	**C2c**
p-value	0.10	0.49	0.67	0.90	0.79	0.92	0.72	0.423	0.48
Item	**C2d**	**C3a**	**C3b**	**C3c**	**C3d**	**D1b**	**D1c**	**D1e**	**D1f**
p-value	0.31	0.30	0.40	0.06	0.27	0.16	0.96	0.29	0.40

Table 4.7: T-Test results for all items in section B1, C, and D for MN vs. ND

Item	**B1a**	**B1b**	**B1c**	**B1d**	**B1e**	**B1f**	**B1g**	**B1h**	**B1i**
Test Statistic	-2.408	-1.92	-2.12	0.056218	-1.9046	0.20386	-1.168	-1.7433	-1.74
p-value	0.0172	0.055	0.035	0.9552	0.05858	0.8387	0.2442	0.08312	0.083
Df	160.99	170.2	166.7	153.34	163.77	161.45	164.4	166.68	153.5
MN mean	3.4608	3.101	3.274	3.2941	3.08823	3.2843	3.5	3.2157	3.196
ND mean	3.6712	3.589	3.5068	3.2877	3.31507	3.2603	3.603	3.4109	3.397
Item	**B1j**	**B1k**	**B1l**	**B1m**	**B1mm**	**B1n**	**B1o**	**B1p**	**B1q**
Test Statistic	-0.936	-2.974	-0.031	-0.20206	0.20151	-1.257	-1.690	-1.582	-1.983
p-value	0.3502	0.0034	0.9785	0.8401	0.8406	0.2106	0.093	0.1155	0.0489
Df	156.62	173	168.73	167.1	159.81	161.15	165.27	166.66	167.41
MN mean	2.9902	3.4012	3.147	3.167	3.108	3.127	3.0588	3.1764	3.029
ND mean	3.1096	3.685	3.151	3.172	3.082	3.2877	3.274	3.3562	3.260
Item	**B1r**	**B1s**	**B1t**	**C1a**	**C1b**	**C1c**	**C2a**	**C2b**	**C2c**
Test Statistic	-1.481	-0.915	-1.241	-1.7947	-2.994	-1.542	-1.026	-0.3618	-1.927
p-value	0.1403	0.3611	0.2161	0.0745	0.0032	0.125	0.3063	0.718	0.0569
Df	165.6	168.93	172.94	172.99	173	157.25	169.46	168.91	172.98
MN mean	2.9803	2.9607	2.9902	3.4902	3.4314	3.461	3.4196	3.2255	3.255
ND mean	3.1781	3.0822	3.1507	3.6712	3.685	3.603	3.5205	3.2739	3.4657
Item	**C2d**	**C3a**	**C3b**	**C3c**	**C3d**	**D1b**	**D1c**	**D1e**	**D1f**
Test Statistic	-1.231	-0.916	-0.459	-0.9382	-1.0911	-2.3746	-0.173	-1.1968	-2.419
p-value	0.2197	0.3613	0.647	0.3496	0.2767	0.0187	0.8625	0.2331	0.0166
Df	72.22	161.8	158.15	162.41	172.81	171.89	156.53	166.67	172.22
MN mean	3.451	2.98	3.3529	3.314	3.304	3.3333	3.3039	3.4412	3.2353
ND mean	3.589	3.123	3.4109	3.424	3.425	3.6027	3.3288	3.5753	3.5069

Table 4.8: T-Test results for all items in section B1, C, and D for ESM vs. Not ESM

Item	**B1a**	**B1b**	**B1c**	**B1d**	**B1e**	**B1f**	**B1g**	**B1h**	**B1i**
Test Stat	1.123	-0.2637	0.5705	-2.239	-2.612	-0.692	-0.692	-0.257	-1.275
p-value	0.2629	0.7923	0.5691	0.0264	0.0098	0.489	0.489	0.797	0.2042
Df	174.66	173.72	166.29	178.28	158.39	164.53	164.53	152.93	147.14
ESM mean	3.597	3.4545	3.416	3.1688	2.987	3.221	3.221	3.2857	3.207
Other mean	3.504	3.479	3.355	3.3967	3.289	3.297	3.297	3.3141	3.347
Item	**B1j**	**B1k**	**B1l**	**B1m**	**B1mm**	**B1n**	**B1o**	**B1p**	**B1q**
Test Stat	-1.183	1.1217	1.1217	1.1217	-1.9714	-0.652	0.067	-0.751	-0.064
p-value	0.2386	0.2635	0.2635	0.2635	0.0502	0.5152	0.9467	0.4536	0.9312
Df	153.84	174.47	174.47	174.47	172.36	161.38	159.01	159.69	177.32
ESM mean	2.974	3.584	3.584	3.584	2.961	3.1688	63.181	3.2078	3.1558
Other mean	3.1157	3.479	3.479	3.479	3.19	3.2479	3.1735	3.2893	3.1653
Item	**B1r**	**B1s**	**B1t**	**C1a**	**C1b**	**C1c**	**C2a**	**C2b**	**C2c**
Test Stat	-1.832	-1.4499	-0.8865	0.2179	-0.1559	-0.342	-0.783	-1.099	-1.131
p-value	0.0687	0.1491	0.3767	0.8277	0.8762	0.7323	0.4349	0.273	0.2602
Df	161.68	159.09	164.86	158.61	173.25	160.66	149.75	156.86	141.31
ESM mean	2.9351	2.9221	3.013	3.584	3.5065	3.481	3.3766	3.1429	3.2467
Other mean	3.174	3.1074	3.124	3.562	3.5207	3.512	3.471	3.2893	3.3802
Item	**C2d**	**C3a**	**C3b**	**C3c**	**C3d**	**D1b**	**D1c**	**D1e**	**D1f**
Test Stat	-1.712	-1.651	-0.505	-0.4926	-0.6201	-0.718	-0.2021	-0.414	0.1924
p-value	0.0892	0.1007	0.6143	0.6229	0.536	0.4733	0.8401	0.6792	0.8477
Df	136.29	154.71	154.08	165.83	165.83	174.85	157.26	163.97	173.93
ESM mean	3.403	2.909	3.2987	3.2987	3.2857	3.4156	3.3117	3.4935	3.3766
Other mean	3.595	3.157	3.3636	3.3553	3.3553	3.4959	3.3388	3.5372	3.5537

As the tables show, in every case where State or Subject were considered to have a significant effect, the ND average answer was higher than MN and the non-ESM average answer was higher than ESM. However, it is worth noting again that only 17 of the 144 tests (22.2%) indicated a difference between the two populations of either State or Subject at the 0.05 level.

Table 4.9 does a further breakdown of the number of significant differences at the 0.05 level for each test and for each population. The numbers in parentheses represent the number of items in that cell corresponding to section B1, C, and D respectively. For example, in the State/Fisher cell the 5 tells us that there were 5 Fisher's Exact Tests that indicated a difference between ND teachers' and MN teachers' answers. We can also see that of those 5, 3 came from section B1, 1 came from section C, and 1 came from section D.

Table 4.9: Breakdown of significant results for Fisher's Exact Test and T-test at α=0.05

	Fisher	T-test	total
state	5 (3, 1, 1)	7 (4, 1, 2)	12 (7, 2, 3)
subject	3 (3, 0, 0)	2 (2, 0, 0)	5 (5, 0, 0)
total	8 (6, 1, 1)	9 (6, 1, 2)	17 (12, 2, 3)

4.3. Inter-survey Analysis

In order to investigate the relationships between state, subject, and the different portions of the survey linear and logistic regression models were fit to the data. The first set of models created included state and subject as independent variables. However, after finding that subject was not significant in any model, it was not included as an independent variable in further analysis. After that, state was found to have weak significance (p-values around 0.1) in only about 10% of the models. Therefore it too was excluded as an independent variable in the models to focus on associations among the items in sections B1, C, and D.

After dropping state and subject, 54 linear models were fit using different combinations of dependent and independent variables. A list of all models used in this study can be found in table 4.10. For the linear regression models, the equation $N = 10k$ (Harrell et al. 1996) was used to determine the maximum number of independent variables appropriate for each of the models, where N is the sample size and k is the maximum number of independent variables in the model. For this study, N=198 so each model should have no more than 20 independent variables. Only 5 of the 54 models started with more than 20 independent variables, but stepwise selection was performed on each model with more than two independent variables to find the subset of independent variables that resulted in the best prediction of the dependent variable for that model. The R function stepAIC ("MASS" package) was used to perform these stepwise selections and obtain the final models.

Table 4.10: Listing all models that were constructed and used for this study

Type	Dep. Var.	Independent variables	# of this type
Linear	Individual B1	Average C	21
Linear	Individual B1	All individual item in C	21
Linear	Average B1	Average C	1
Linear	Average B1	All individual item in C	1
Linear	Individual D	Average B1 + Average C	4
Linear	Individual D	All individual item in B1 + all individual item in C	4
Linear	Average D	Average B1 + Average C	1
Linear	Average D	All individual item in B1 + all individual item in C	1
			54 linear
Logistic	Individual B1	Average C	21
Logistic	Individual B1	All individual item in C	19
Logistic	Individual D	Average B1 + Average C	4
Logistic	Individual D	All individual item in B1	4
Logistic	Individual D	All individual item in C	4
			52 logistic
			106

In the social sciences, an adjusted-R^2 greater than 0.3 is considered good. Of the 54 linear models, 8 had an adjusted-R^2 greater than 0.3, 6 had an adjusted-R^2 greater than 0.4, and 4 had an adjusted-R^2 greater than 0.5. Tables 4.11 through 4.13 give the results of several linear regression analyses. Results for all the linear models can be found in Appendix B, tables B.1 – B.54.

Table 4.11: Regression analysis for the following linear model:

Average B1 ~ Average C

Dependent Variable			
Average B1	Estimate	Standard Error	P-value
Intercept	1.5704	0.2239	<0.001
Average C	0.4981	0.0655	<0.001
	adj R2 = 0.0365 p-value <0.001		

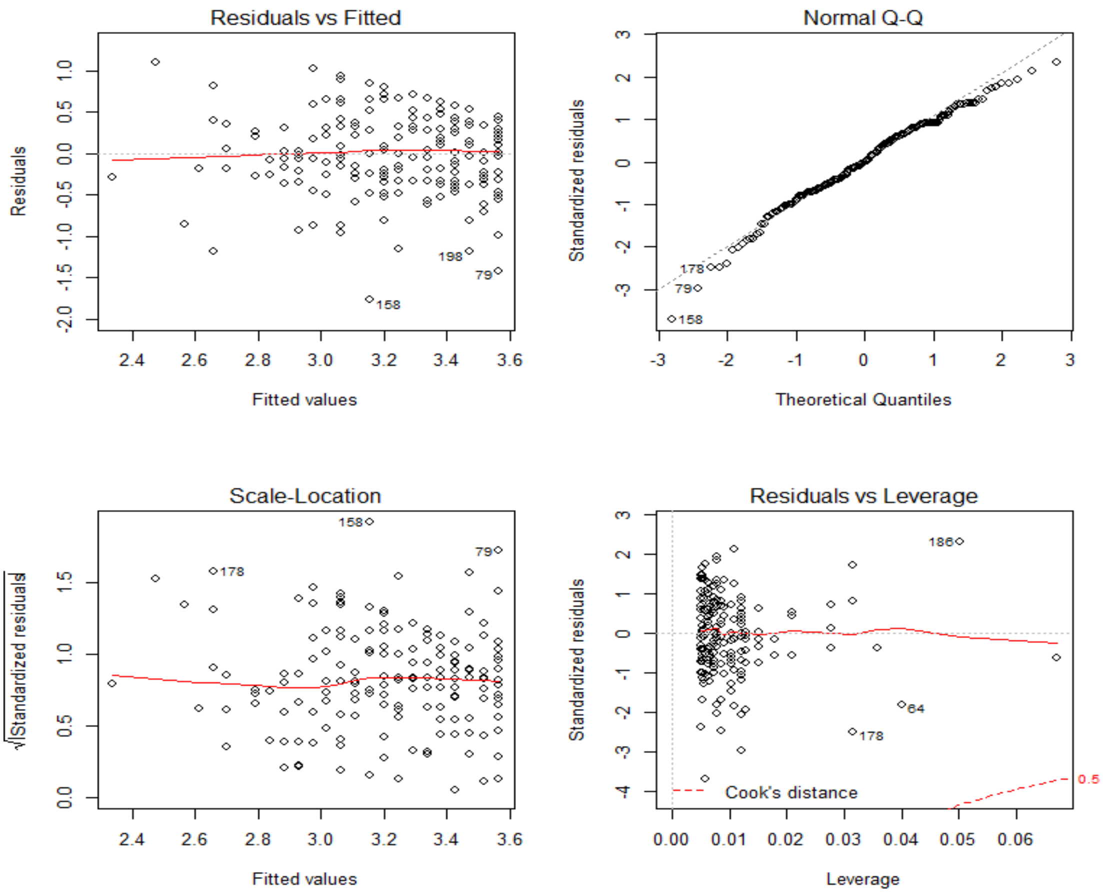

Figure 4.7: Residual plots for the model Average B1 ~ Average C

As we can see from table 4.11 and figure 4.7, the linear model for average B1 versus average C has a low R^2 value which means it is not a good fit. The residual plots though appear to indicate that the validity of the linear regression is good. The residuals vs. fitted plot shows a fairly even distribution of residuals around 0, except for on the right tail where it begins to narrow slightly. This may be due to the use of a Likert scale for the survey questions. The normal Q-Q plot shows a normal distribution of the residuals with no obvious patterns or departures from normality. The scale location plot looks very similar to the residuals vs. fitted plot, which is good because in both plots, we are looking to see if the residuals are evenly distributed around a straight horizontal line. Once again, the residuals narrow towards the right side of the plot due to use of a Likert scale. Finally, the residuals vs. leverage plot shows no extremely weighted observations which is good.

Table 4.12: Regression analysis for the following linear model:
Average B1 ~ C2a_val + C2c_seek

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
Average B1	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.5415	0.2584	<0.001	0.6752	0.0444	<0.001
C1a	0.0019	0.0652	0.977			
C1b	0.0124	0.0825	0.881			
C1c	0.1180	0.0830	0.157			
C2a	0.0673	0.0575	0.243	0.1259	0.0506	0.014
C2b	-0.0356	0.0531	0.504			
C2c	0.1146	0.0653	0.081	0.2251	0.0524	<0.001
C2d	0.0668	0.0558	0.233			
C3a	0.0495	0.0422	0.242			
C3b	0.0741	0.0530	0.164			
C3c	-0.0276	0.0568	0.628			
C3d	0.0628	0.0594	0.292			
	Adj R2 = 0.2165 P-value <0.001			Adj R2 = 0.191 P-value <0.001		

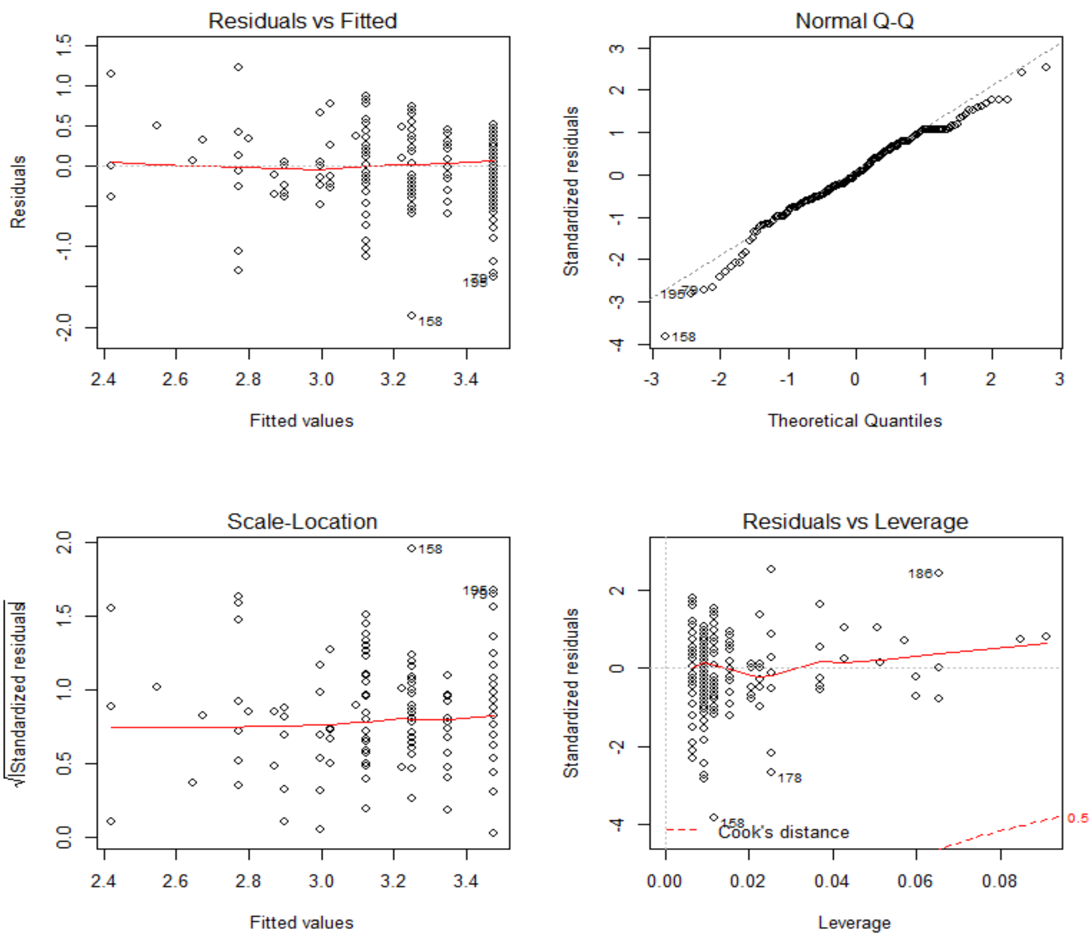

Figure 4.8: Residual plots for Average B11 ~ C2a_val + C2c_seek

The model for average B1 vs. individual items from C has an R^2 value of 0.191, below the social sciences guideline of 0.3, indicating the model might not be a good fit. The vertical lines in the residual vs. fitted plot appear because the data being used is discrete, and other than that it looks like it is centered and evenly spread around 0. So that plot shows no assumption violations. The same results are seen in the scale location plot, indicating that the assumption of equal variances is likely to hold true. And the residuals vs. leverage plot shows no major outlying values. However, the normal Q-Q plot shows a couple small deviations from normality. Overall this model seems to uphold the assumptions of linear models, but it is one of very few that do.

Table 4.13: Regression analysis for the following linear model:
Average D ~ B1b_strat + B1c_pers + B1h_mod + B1i_fdbk + B1k_assess + B1p_crit + B1s_glbl + C1a_safe + C2a_val + C3d_supp

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
Average D	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.1229	0.2846	0.668	0.1594	0.2187	0.467
B1a	0.0369	0.0717	0.607			
B1b	-0.0914	0.0684	0.171	-0.1219	0.0586	0.039
B1c	0.0971	0.0640	0.131	0.0996	0.0559	0.076
B1d	-0.0151	0.0668	0.822			
B1e	-0.0063	0.0545	0.908			
B1f	-0.0246	0.0557	0.659			
B1g	0.0630	0.0687	0.360			
B1h	0.2302	0.0651	0.001	0.2483	0.0539	<0.001
B1i	0.1138	0.0590	0.056	0.0962	0.0513	0.062
B1j	-0.0484	0.0556	0.385			
B1k	0.1952	0.0658	0.003	0.1999	0.0573	<0.001
B1l	0.0131	0.0566	0.818			
B1m	-0.0671	0.0610	0.273			
B1mm	0.0633	0.0542	0.244			
B1n	-0.0255	0.0836	0.761			
B1o	-0.0038	0.0816	0.962			
B1p	0.1251	0.0808	0.124	0.0799	0.0525	0.130
B1q	-0.0825	0.0847	0.332			
B1r	0.0306	0.0524	0.560			
B1s	0.0591	0.0639	0.356	0.0626	0.0450	0.166
B1t	0.0424	0.0640	0.509			
C1a	0.1765	0.0578	0.003	0.1789	0.0449	<0.001
C1b	-0.0518	0.0735	0.482			
C1c	0.0415	0.0736	0.843			
C2a	0.1955	0.0521	0.002	0.1944	0.0418	<0.001
C2b	0.0285	0.0488	0.560			
C2c	0.0391	0.0600	0.513			
C2d	-0.0295	0.0499	0.554			
C3a	0.0285	0.0365	0.436			
C3b	-0.0216	0.0469	0.645			
C3c	-0.0230	0.0510	0.652			
C3d	-0.0870	0.0539	0.108	-0.0753	0.0412	0.069
	Adj R2 = 0.591 P-value <0.001			Adj R2 = 0.621 P-value <0.001		

As mentioned before, due to the way the questions are worded and the way the scale is set up, it is expected that all coefficient estimates should be positive. In this model, most of the coefficient estimates are positive, except for the estimate for B1b and C3d. Even though none of the VIF's were considered problematic, there could still be some multicollinearity influencing the coefficient estimates. The correlations for those two independent variables and the dependent variable were checked as well using Pearson's test for correlation, but no negative correlation exists. There were several other models that had one or two negative coefficient estimates as well. The correlations were tested for all of those variables as well and no negative correlation was found.

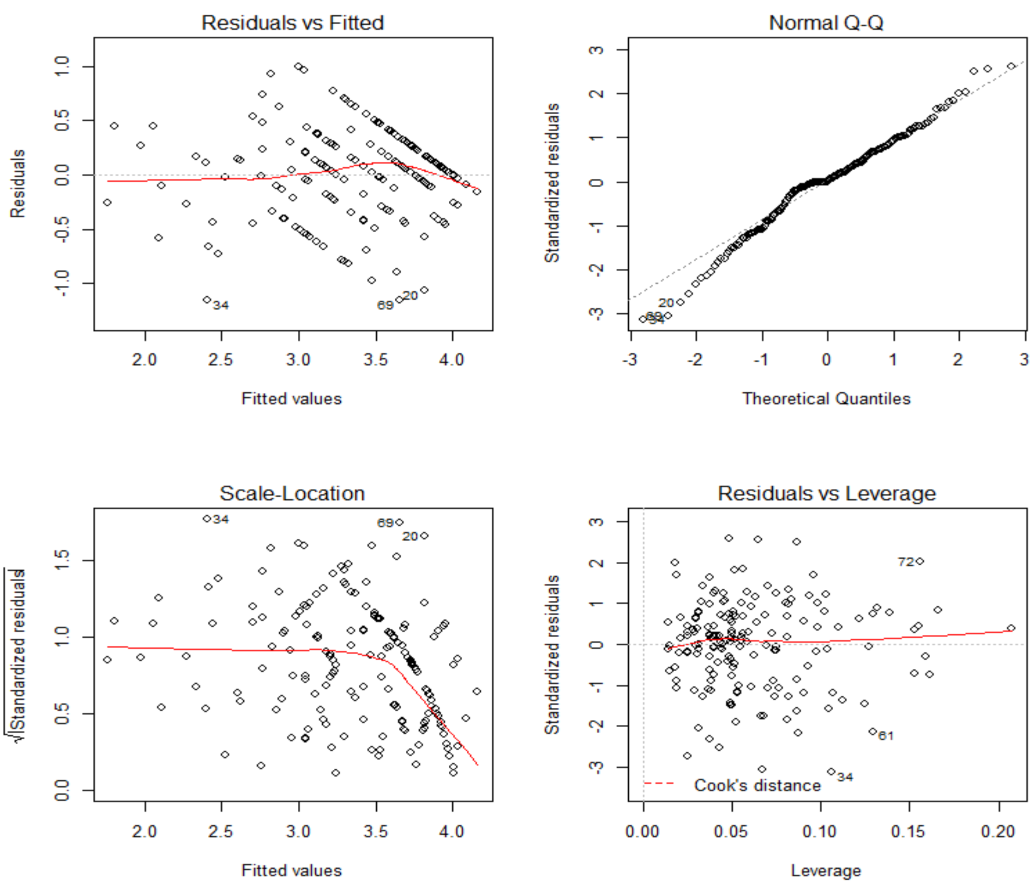

Figure 4.9: Residual plots for Average D ~ items from B1 and C

The adjusted-R^2 for this model is 0.621, the highest of any model considered in this study. However, the residual vs. fitted plot shows diagonal parallel lines, due to the use of a Likert scale, but no obvious patters otherwise. The normal Q-Q plot shows a few variations from normality, and the scale-location plot shows a strong indication of unequal variance. Due to most of the linear models having either a low adjusted-R^2, assumption violations visible in the residual plots, or both, logistic regression models were also created. A comparison of the linear and logistic models and their analyses can be found at the end of this chapter.

None of the 22 linear models with individual items from section C as independent variables and either average B1 or an item from B1 as the dependent variable had an adjusted-R^2 greater than 0.3. There were five linear models with individual items from both sections B1 and C as the predictor variables. All five had adjusted-R^2 greater than 0.3 and so were considered to be good. In these models, B1h_mod was represented in all five. B1b_strat and B1p_crit both were in four of the five final models, and B1k_assess and B1s_glbl were in three final models. From section C, C2a_val was in all five final models, and C1a_safe was in four of the five, while C2a_val which had been in the most models when trying to predict section B1, appeared in none of the five final models where section D was the dependent variable. Most of the independent variables had positive parameter estimates in the models; however, there were a few instances of a negative estimate. C3d_supp was present in the models with both average D and D1c_happy and had a negative parameter estimate in both cases. B1b_strat was present in all of the models except for D1f_pre, and had a negative estimate in the models for average D, D1c_happy, and D1e_rwds. Again, this is most likely due to some small multicollinearity amongst the independent variables.

These patterns seem to indicate that all items in part C can be useful when trying to predict how a teacher feels their teaching preparedness program helped them be ready for their career. However, only C1a_safe, C2a_val, and C2c_seek are good predictors for forecasting any and all of section D.

We can also see a few interesting points in terms of the dependent variables of the models that exceed the 0.3 adjusted-R^2 threshold. There were 54 linear models generated and 8 of those were considered good according to the social sciences' guidelines for adjusted-R^2. None of the models using items in section B1 as dependent variables had adjusted- R^2 greater than 0.3. This indicates that they are difficult to predict using answers to items from section C; although they seem to violate the assumptions of linear regression analysis so further analysis is needed. The other two models with a low adjusted-R^2 use the averages of both sections B1 and C as the predictor variables, and D1c_happy and D1f_pre as the dependent variables for the two models. Both D1c_happy and D1f_pre had good models using averages of sections B1 and C separately, so this may indicate multicollinearity between the averages of B1 and C. When we look at the model with average B1 as the dependent variable and average C as the independent we see that it, too, has a low adjusted-R^2. Figure 4.10 shows the correlation between the averages of sections B1, C, and D.

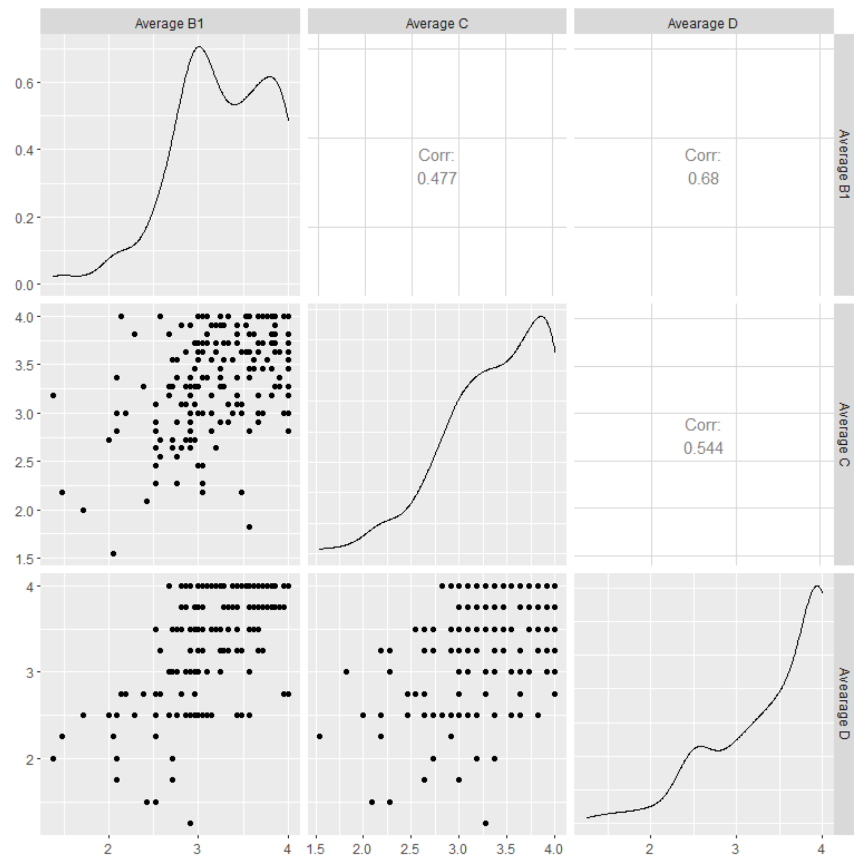

Figure 4.10: Correlation Between the averages of sections B1, C, and D

A test for partial correlation was also performed. Table 4.14 contains the p-values from those tests. Note that all the p-values are below 0.05. For this test, a p-value below 0.05 means that there is significant correlation between the two variables being compared. So there seems to be a correlation between all three pairings of the three variables: Average B1, Average C, and Average D.

Table 4.14: P-values for the test of partial correlation between section averages

	Average B1	Average C	Average D
Average B1	0	0.0143	2.24×10^{-18}
Average C	0.0143	0	9.33×10^{-7}
Average D	2.24×10^{-18}	9.33×10^{-7}	0

For analysis using logistic regression models, the data were transformed as described in the last paragraph of Chapter 3.1. This transformation combined the “Agree” and “Tend to Agree” answers into one “positive” group (coded as 1), and the “Disagree” and “Tend to Disagree” answers into a “negative” group (coded as 0). This was done in an attempt to reduce the number of survey items whose cell count was too low for either “Disagree” or “Tend to Disagree” since many items had only one or two responses in these categories.

Once the data were transformed, all the models that had a dependent variable as a response from a single item (not the average of all items in a whole section) were redone as logistic regressions. This resulted in 52 logistic models. A suggested number of independent variables for a logistic model was found using the sample size rule: $N = \frac{10 \times k}{p}$ (Peduzzie et al. 1996), where N is the sample size, k is the maximum number of independent variables appropriate for the model, and p is the minimum of the proportion of 0’s and the proportion of 1s in the dependent variable. Since k is the number that we have the ability to change, the formula can be rearranged into: $k = \frac{Np}{10}$. Using this formula, the appropriate maximum number of independent variables was determined for each logistic regression model. Unlike the analyses using linear regression, the value of k is different for each logistic regression model because the value of p differs among the survey items. Similar to the analyses using linear regression models, stepwise regression using the stepAIC function was implemented to reduce the number of independent variables in the models. In many cases stepwise selection resulted in a model with a number of independent variables less than or equal to the target value of k, or at least a number close enough since the target number is only a guideline. Models that still had an excess number of independent variables were reduced further by removing variables with the highest p-value until there were no more variables with p-value above 0.4 or until the model reached the target number of predictor variables.

Because the R^2 and adjusted R^2 values are only used in linear regression, McFadden's Adjusted Pseudo R^2 ($MAPR^2$) was used as the measure of fit for these models. According to McFadden, a value between 0.2 and 0.4 is considered very good (McFadden, 1974) and it tends to be lower than an adjusted-R^2. So this study decided to use 0.1 as the cutoff for considering a model to be a good fit. The formula for McFadden's Adjusted Pseudo R^2 is as follows:

$$R^2_{adj} = 1- \ln\big(L(Mfull)\big) - k \big/ \ln\big(L(Mintercept)\big)$$

In this formula, "Mfull" represents the model with all final independent variables being considered in the model, "k" is the number of independent variables being used in the full model, "Mintercept" represents the model with the same dependent variable but with no independent variables, "L( )" is the log-likelihood of whichever model is inside the parentheses, and "ln( )" is the natural log. While this value cannot be directly compared to the adjusted R^2 values from the linear regressions, it is still a useful tool when evaluating different logistic regression models.

Of the remaining 52 logistic regression models there were eight that had a $MAPR^2$ greater than 0.1, and two more that were very close. Tables 4.15 through 4.24 below contain the results of analysis for those ten models. The results for all logistic regression models can be found in Appendix B, tables B.55 – B.106.

Unlike for the linear regression models, we cannot use residual plots to assess the goodness-of-fit for these logistic models. Instead, a Hosmer-Lemeshow goodness-of-fit test was implemented. In this test, a p-value below 0.05 indicates the model is not a good fit. All of the Hosmer-Lemeshow tests showed that the logistic models were a good fit, with none of the p-values being lower than 0.41. Therefore, it was determined that the logistic regression models were a good fit for the data.

Table 4.15: Regression analysis for the following logistic model:
B1s_glbl ~ C2a_val + C2b_needs + C2c_seek + C3d_supp

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1s_glbl	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.1504	1.8263	0.239	1.9183	1.2137	0.114
C1a	-1.3028	1.3375	0.330			
C1b	0.2614	0.9409	0.781			
C1c	0.7537	0.8256	0.361			
C2a	1.4808	0.6501	0.023	1.7516	0.6094	0.004
C2b	-0.7582	0.7108	0.286	-0.9521	0.6727	0.157
C2c	1.4783	0.6539	0.024	1.7423	0.6120	0.004
C2d	0.5001	0.9719	0.607			
C3a	0.5988	0.4912	0.223			
C3b	0.2647	0.7207	0.713			
C3c	-0.4701	0.7336	0.522			
C3d	-3.2504	1.3928	0.020	2.8838	1.2230	0.018
	McFadden R2 = -0.071 df=12			McFadden R2 = 0.1706 df=5		

C2b needs has a negative coefficient estimate in this model. However, just as with the above linear models, no negative correlation was found between C2b and B1s. Therefore it is believed to be an error cause by small amounts of multicollinearity between the independent variables.

Table 4.16: Regression analysis for the following logistic model:
D1c_happy ~ C1a_safe + C2a_val

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1c_happy	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-2.6858	1.5100	0.075	-1.3716	0.8010	0.087
C1a	1.8373	0.7857	0.019	2.0145	0.6616	0.002
C1b	-1.3772	1.1622	0.236			
C1c	1.2124	0.9443	0.199			
C2a	1.5749	0.7043	0.025	1.8525	0.5610	<0.001
C2b	0.4136	0.7452	0.579			
C2c	0.5708	0.8064	0.479			
C2d	0.1352	0.9672	0.889			
C3a	-0.9897	0.7030	0.159			
C3b	0.7175	0.8023	0.371			
C3c	1.0357	0.7242	0.153			
C3d	0.2195	0.7543	0.771			
	McFadden R2 = 0.0414 df = 12			McFadden R2 = 0.1497 df=3		

Table 4.17: Regression analysis for the following logistic model:
D1f_pre ~ C1c_pos + C2b_ needs+ C2c+_seek + C3b_tech

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1f_pre	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	16.8727	1679.12	0.992	1.9131	1.6860	0.2565
C1a	-15.580	1679.12	0.993			
C1b	1.3587	1.8953	0.473			
C1c	-2.8261	2.1554	0.190	-1.7923	1.3220	0.1750
C2a	0.6408	0.9971	0.520			
C2b	-1.4965	1.2496	0.231	-1.7012	1.2066	0.1586
C2c	2.3387	0.8792	0.008	2.7273	0.8088	<0.001
C2d	0.9489	1.4217	0.504			
C3a	0.0592	0.7723	0.939			
C3b	2.1682	0.8009	0.007	1.9294	0.6723	0.004
C3c	-0.3439	0.9950	0.730			
C3d	-1.0749	1.2129	0.376			
	McFadden R2 = -0.1851 df=12			McFadden R2 = 0.0985 df=5		

Here again, C1c and C2b have negative coefficient estimates due to small amounts of multicollinearity in the model.

Table 4.18: Regression analysis for the following logistic model:
D1b_rec ~ B1h_mod + B1k_assess

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1b_rec	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-5.1014	2.2069	0.021	-2.0679	0.8542	0.015
B1a	0.1156	0.7070	0.870			
B1b	-0.3609	0.6755	0.593			
B1c	0.7212	0.6601	0.275			
B1d	-1.0172	0.6520	0.119			
B1e	-0.0945	0.5294	0.858			
B1f	-1.0234	0.5780	0.077			
B1g	0.5117	0.6101	0.402			
B1h	0.9489	0.6316	0.133	1.8424	0.6673	0.006
B1i	0.7605	0.5966	0.202			
B1j	-0.0579	0.5638	0.918			
B1k	0.7658	0.5617	0.172	3.4362	0.7349	<0.001
B1l	0.5502	0.5685	0.333			
B1m	0.0122	0.6981	0.986			
B1mm	-0.2298	0.5248	0.662			
B1n	0.9585	0.8685	0.270			
B1o	-0.3793	0.80932	0.639			
B1p	-0.1388	0.8229	0.866			
B1q	-0.7767	1.0129	0.443			
B1r	1.1386	0.5094	0.025			
B1s	-0.1934	0.6477	0.765			
B1t	0.3854	0.6595	0.559			
	McFadden R2 = 0.0127 df=22			McFadden R2 = 0.2177 df= 3		

Table 4.19: Regression analysis for the following logistic model:
D1c_happy ~ B1e_long + B1f_adjust + B1j_self + B1o_tools + B1t_concl

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1c_happy	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.7660	2.1729	0.724	-.03719	0.7020	0.958
B1a	0.7207	0.6260	0.250			
B1b	-0.5435	0.5967	0.362			
B1c	-1.0368	0.5935	0.081			
B1d	0.4707	0.5826	0.419			
B1e	1.1867	0.4574	0.009	1.80626	0.57574	0.00171
B1f	0.9691	0.4671	0.038	0.93803	0.56046	0.09419
B1g	-0.8321	0.5125	0.104			
B1h	0.9292	0.5565	0.095			
B1i	0.2399	0.5033	0.633			
B1j	0.7669	0.4778	0.109	0.99413	0.58012	0.08659
B1k	-0.5012	0.5744	0.383			
B1l	-0.4174	0.4830	0.387			
B1m	-0.3509	0.5623	0.533			
B1mm	0.2869	0.4575	0.531			
B1n	-0.2299	0.7906	0.771			
B1o	-0.3769	0.8200	0.646	-1.4785	0.78030	0.05811
B1p	1.0723	0.7267	0.140			
B1q	-1.8481	0.8321	0.026			
B1r	-0.4779	0.4359	0.272			
B1s	0.2334	0.5472	0.670			
B1t	1.0363	0.5896	0.078	0.72207	0.56197	0.19883
	McFadden R2 = 0.0639 df=22			McFadden R2 = 0.146 df=11		

B1o has a negative coefficient estimate in this model. Likely due to some multicollinearity in the model.

Table 4.20: Regression analysis for the following logistic model:
D1f_pre ~ B1b_strat + B1g_clear + B1k_assess + B1m_ lrnnds+ B1q_cmplx

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1f_pre	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-11.262	3.9188	0.004	-4.2981	1.5762	0.006
B1a	0.6160	1.0020	0.539			
B1b	-0.7724	0.8861	0.383	1.1076	0.9718	0.254
B1c	-0.2997	1.0156	0.768			
B1d	-0.4145	1.2300	0.736			
B1e	0.2307	0.7859	0.769			
B1f	-0.6687	0.8443	0.428			
B1g	2.4461	1.0816	0.024	1.6522	1.1024	0.134
B1h	-0.1177	0.8623	0.891			
B1i	0.5537	0.7744	0.475			
B1j	-1.2865	0.7371	0.081			
B1k	0.8052	0.7223	0.265	2.4484	0.8108	0.003
B1l	0.7750	0.7737	0.3165			
B1m	2.1978	1.0491	0.036	1.5189	0.660	0.021
B1mm	-1.4690	0.7931	0.064			
B1n	1.5623	1.5224	0.305			
B1o	-1.3838	1.3534	0.307			
B1p	-0.5148	1.1714	0.660			
B1q	1.9612	1.2273	0.110	1.7581	0.7003	0.012
B1r	0.9306	0.7610	0.221			
B1s	-0.2450	0.8175	0.764			
B1t	0.0415	0.9459	0.965			
	McFadden R2 = 0.1657 df=12			McFadden R2 = 0.2248 df= 6		

Table 4.21: Regression analysis for the following logistic model:
D1b_rec ~ Average B1 + Average C

Dependent Variable			
D1b_rec	Estimate	Standard Error	P-value
Intercept	-4.888	1.590	0.002
Average B1	5.209	1.359	<0.001
Average C	3.585	1.621	0.027
	McFadden R2 = 0.1755 df=3		

Table 4.22: Regression analysis for the following logistic model:
D1c_happy ~ Average B1 + Average C

Dependent Variable			
D1c	Estimate	Standard Error	P-value
Intercept	-3.3990	1.403	0.005
Average B1	3.094	1.166	0.008
Average C	3.977	1.441	0.006
	McFadden R2 = 0.0984 df=3		

Table 4.23: Regression analysis for the following logistic model:
D1e_rwds ~ Average B1 + Average C

Dependent Variable			
D1e_rwds	Estimate	Standard Error	P-value
Intercept	-3.157	1.576	0.045
Average B1	4.927	1.325	<0.001
Average C	1.744	1.661	0.294
	McFadden R2 = 0.1194 df=3		

Table 4.24: Regression analysis for the following logistic model:
D1f_pre ~ Average B1 + Average C

Dependent Variable			
D1f_pre	Estimate	Standard Error	P-value
Intercept	-3.795	1.758	0.031
Average B1	6.392	1.545	<0.001
Average C	1.523	1.850	0.410
	McFadden R2 = 0.1903 df=3		

Tables 4.26, 4.27, and 4.28 show the different types of dependent variables and the significance of independent variables across all of the models, both linear and logistic. A legend is included in table 4.25 to aid in reading the them.

Table 4.25: Legend for Tables 4.26, 4.27, and 4.28

Symbol	**Meaning**
Lin	included in only a final linear model but did not have a p-value lower than 0.05
Log	included in only a final logistic model but did not have a p-value lower than 0.05
Both	included in both a linear and logistic final model but did not have a p-value lower than 0.05 in either case
lin	included in only a final linear model and had a p-value lower than 0.05
log	included in only a final logistic model and had a p-value lower than 0.05
sig lin	included in both a linear and logistic final model but only had a p-value lower than 0.05 in a linear final model
sig log	included in both a linear and logistic final model but only had a p-value lower than 0.05 in a logistic final model
both	included in both a linear and logistic final model and had a p-value below 0.05 in both a linear and logistic final model

Table 4.26: Significance of individual items. Section B1 as the dependent variable

DV	**Independent Variable**											
	Section C											
	Av C	C1a	C1b	C1c	C2a	C2b	C2c	C2d	C3a	C3b	C3c	C3d
Av B	Lin				lin		lin					
B1a	both	lin	lin		log	lin				lin	lin	Sig lin
B1b	Sig lin	lin								lin		log
B1c	Sig lin				lin		lin	log			lin	
B1d	Sig lin			Sig lin					lin	lin		
B1e	both			both	lin	log		log		lin	lin	
B1f	both		Sig log				lin		lin		lin	log
B1g	Sig lin	lin		lin			lin			lin		
B1h	both		Sig lin			lin	both	both		lin		log
B1i	Sig lin			lin	lin			lin				lin
B1j	both	lin					Sig lin	log		lin		
B1k	both		log				Sig lin			both		
B1l	Sig lin						Sig lin					
B1m	both	log	lin		lin		log		Sig log	lin	lin	
B1mm	Sig lin						both	lin			log	
B1n	both		Sig lin				lin	lin		log		Sig lin
B1o	Sig lin				log			Sig lin			log	lin
B1p	both						both			log		lin
B1q	both		log	lin	log		Sig log	log	lin			both
B1r	Sig lin	log		lin		lin	lin	lin				lin
B1s	Sig lin			lin	both	both	log					both
B1t	both			lin				lin	both	log	log	

Table 4.27: Significance of individual items. Section D as the dependent variable and B1 as independent variables

DV	**Independent Variable**																					
	Section B1																					
	Av	a	b	c	d	e	f	g	h	i	j	k	l	m	mm	n	o	p	q	r	s	t
Av D	Lin		lin	lin					lin	lin		lin						lin			lin	
D1b	both		lin				lin		both			both								lin		
D1c	both		lin			log	log		lin	lin	log			lin	lin		log	lin	lin	lin	lin	log
D1e	both		lin	Sig lin					Sig lin	log						lin		both			lin	
D1f	both	lin	log					log	lin			both		log				lin	log			

Table 4.28: Significance of individual items. Section D as the dependent variable and C as independent variables

DV	**Independent Variable**											
	Section C											
	Av	1a	1b	1c	2a	2b	2c	2d	3a	3b	3c	3d
Av D	Lin	lin			lin							lin
D1b	Sig. log		log		lin		log	log	lin	lin		
D1c	both	both			both	lin				lin		lin
D1e	Sig lin	lin			Sig lin					log		
D1f	Sig lin	lin		both	lin	log	log			both		

The logistic models were more difficult to ascertain a pattern from. Only three of the ten considered models used individual items from B1 as independent variables. Another three used section C as the independent variables. And the final four models used the average B1 and average C as independent variables. In those four models, all of the parameter estimates were positive, indicating a positive association between sections B1 and C. This means that when a teacher feels they were well prepared to handle many different aspects of their job by their teacher preparedness program (section B1) and when they feel they are getting all the help and support they need from their administration and colleagues (section C), they are more likely to be satisfied with their teacher preparedness program as well as with their career choice in general (section D). This makes sense intuitively, and also gives supporting evidence for one of the main points of this study. That a teacher's happiness with their job and their alumni is reliant on the perceived level of preparation and support given to them.

There were also some interesting points regarding the dependent variables of the models that were considered good. Of the ten considered models, two used D1b_rec as the dependent variable, two used D1c_happy, two used D1e_rwds, and three used D1f_pre. The only logistic model above the 0.1 threshold that did not use an item from section D as the dependent variable used B1s_glbl as the dependent variable and individual items from section C as the independent variables.

It is hard to say for certain in some cases, because the adjusted-R^2 and $MAPR^2$ cannot be directly compared, but the linear and logistic regression analyses appear to differ for some models, and for others they appear to agree. For the models with items from B1 as the dependent variable and either individual items from section C or the average of section C, linear and logistic regression analysis gave similar results. When average C was the independent variable the 21 linear regressions had adjusted-R^2 values between 0.06 and 0.18. The 21 logistic regressions of the same type had $MAPR^2$ values between -0.04 and 0.04. A similar trend can be seen when the individual items from section C are used as the predictor variables. The 21 linear models had adjusted-R^2 values between 0.069 and 0.20, while the 19 logistic models (B1g and B1i had model fit problems and were removed from analysis) had $MAPR^2$ values between 0.0014 and 0.069 with one exception. B1s_glbl had a $MAPR^2$ of 0.1706. The linear model for B1s_glbl ~ items from C had an adjusted-R^2 of 0.144. The models also mostly agreed about which items from C are relevant predictors of B1s_glbl (positive association with C2a_val and C3d_supp, and negative association with C2b_needs).

The models with items from section D as the dependent variable and the averages of sections B1 and C as predictor variables were mostly in agreement. Table 4.29 shows the adjusted-R^2 and $MAPR^2$ for each of these models.

Table 4.29: Adjusted-R^2 and $MAPR^2$ of models using items from D ~ average B + average C

	D1b_rec	D1c_happy	D1e_rwds	D1f_pre
Linear (adjusted-R^2)	0.401	0.228	0.322	0.037
Logistic ($MAPR^2$)	0.176	0.098	0.119	0.190

As table 4.29 shows, D1b_rec, D1c_happy, and D1e_rwds all have relatively high adjusted-R^2 and $MAPR^2$. The oddity here is the adjusted-R^2 for the D1f_pre linear model. However, as discussed before there were several linear regression assumptions that were violated. This may be a consequence of those broken assumptions.

The final comparison between the linear and logistic models looks at the models with items from D as dependent variables, and individual items from sections B1 and C as the independent variables. For the linear models, the models are able to have all items that were considered to be significant after stepwise selection in the four models. However, the logistic models required much lower numbers of independent variables due to the suggested number of variables equation: $k = \frac{Np}{10}$. Therefore they were separated into two types of models. One had the items from section B1 as predictor variables and the other type had items from section C as predictor variables. The four linear models had adjusted-R^2 values between 0.338 and 0.584, well above the social sciences guideline of 0.3. The eight logistic models' $MAPR^2$ ranged between 0.012 to 0.225.

The final linear model of D1b_rec ~ items from B1 and C contained eight independent variables. B1b, B1f (negative association), B1h, B1k, B1r, C2a, C3a, and C3b (negative association). The final logistic models varied greatly though. D1b_rec ~ items from B1 had a $MAPR^2$ of 0.218 and had only B1h and B1k as independent variables, both in agreement with the linear model while cutting out some others. The final logistic model for D1b_rec ~ items in C however, had a MAPR^2 of 0.022 and used C1b, C2c, and C2d as independent variables. None of which were present in the final linear model.

The final linear model for D1c_happy contained nine items from section B1 and five items from section C as independent variables. The final logistic models contained five items from section B1, none of which were the same as those in the linear model, and two items from section C (C1a and C2a), both of which were present in the linear model. Both final logistic models had MAPR^2 of about 0.15 as well.

The final linear model for D1e_rwds contained six items from section B1 and two items from section C as independent variables. The MAPR^2 for the logistic models were much lower in this case: 0.065 and 0.012 when using items from B1 and items from C as independent variables respectively. The logistic model using items from B1 as predictors used four items, and three of those (B1c, B1h, and B1p) were items used by the linear model. The logistic model using items from C as predictors used only two items and neither of them were used in the final linear model.

The final linear model for D1f_pre used four items from section B1 as independent variables and four items from section C as independent variables. The logistic models had relatively high MAPR^2; 0.225 when using items from B1 as predictors and 0.099 when using items from section C as predictors. The logistic model used five items from section B1, only one of those was used in the linear model (B1k). The logistic model using items from section C contained four items, and two of those (C1c and C3b) were also used in the final linear model. However, they both had opposite signs for their parameter estimates. C1c had a positive association in the linear model and C3b had a negative association in the linear model. In the logistic model C1c had a negative association and C3b had a positive association.

CHAPTER 5. CONCLUSION

From the analysis, we see that there are indeed certain items and sections within the survey that are associated with other items and sections. State and subject taught had less of an effect than we anticipated, but sections B1, C and D were all very useful in this study. Although direct comparisons cannot be made between the linear and logistic regression models, there are some general conclusions that can be made.

We did not see a lot of differences between Minnesota and North Dakota, or between English, Science, and Math teachers and teachers of other subjects. However, in the few results that did indicate significant difference there was a consistent result of having the average answers for teachers from North Dakota be higher than those of Minnesota teachers. We also noticed in the few significant results for subject that non-ESM teachers on average answered higher than ESM teachers. These results were; however, minimal and so state and subject were dropped from further analysis.

Unfortunately because the adjusted-R^2 and MAPR^2 cannot be directly compared, it is impossible to say for certain which models are the absolute best models. Some of the highest adjusted-R^2 and MAPR^2 come from models using individual items as the independent variables, but overall it seems that there is better association when using the average of a section rather than the individual items from a section. Because each item is a part of a larger factor, it makes sense that taking all items into account by using an entire section average would yield the best results in general. While it does appear that sometimes one or two parts of factors can be used to represent the whole factor, results indicate that keeping the answers together and using the average of a section is a better course of action.

The dependent variables of models with the highest adjusted-R^2 and $MAPR^2$ were D1b_rec, D1e_rwds, D1f_pre, and Average D. The independent variables that had the most significant associations as independent variables were B1h_mod, B1k_assess, B1p_crit, C2a_val, C2c_seek, C3b_tech, Average C, and Average B. Those eight independent variables were consistently estimated to have a positive coefficient, which is what this study anticipated. There were, however, some inconsistencies among the signs of the coefficient estimates of other independent variables. In every case where this happened the correlation of the independent and dependent variable was checked and in every case the correlations were either positive or indeterminant. Therefore it is believed that the negative coefficient estimates are due to small multicollinearity between the independent variables in the model. The variance inflation factors were checked for all models to ensure that the multicollinearity within each model was not causing any major problems. All variance inflation factors were shown to be below the common guideline of 5, and so it was determined that multicollinearity did not have any major influences on the models.

This study used a limited subset of the data, partly due to the need for subject taught and state taught in to be provided in the data sets. Because this study serves to show that state and subject have little effect on the dependent variables of interest (namely sections B1 and D), schools who had to be filtered out due to not providing that information could be used. This would allow us to use information from all 14 institutions in future research. Also, other methods could be used for the analysis. Ordinal or cumulative logistic regression might be used in addition to the binary logistic regression used in this study in order to give a more comprehensive view of the relationships present between the items in the survey.

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APPENDIX A: FREQUENCY TABLES FOR SURVEY ITEMS

Table A.1: Frequency table for B1a_lic

B1a_lic	**1**	**2**	**3**	**4**
Count	0	9	73	116
Combined Count	9		179	

Table A.2: Frequency table for B1b_strat

B1b	**1**	**2**	**3**	**4**
Count	2	12	75	109
Combined Count	14		184	

Table A.3: Frequency table for B1c_pers

B1c	**1**	**2**	**3**	**4**
Count	3	20	74	101
Combined Count	23		175	

Table A.4: Frequency table for B1d_prior

B1d	**1**	**2**	**3**	**4**
Count	3	22	84	89
Combined Count	25		173	

Table A.5: Frequency table for B1e_long

B1e	**1**	**2**	**3**	**4**
Count	6	31	84	77
Combined Count	37		161	

Table A.6: Frequency table for B1f_adjust

B1f	**1**	**2**	**3**	**4**
Count	2	32	75	89
Combined Count	34		164	

Table A.7: Frequency table for B1g_clear

B1g	**1**	**2**	**3**	**4**
Count	1	7	77	113
Combined Count	8		190	

Table A.8: Frequency table for B1h_mod

B1h	**1**	**2**	**3**	**4**
Count	4	21	84	89
Combined Count	25		173	

Table A.9: Frequency table for B1i_fdbk

B1i	**1**	**2**	**3**	**4**
Count	4	20	88	86
Combined Count	24		174	

Table A.10: Frequency table for B1j_self

B1j	**1**	**2**	**3**	**4**
Count	6	41	86	65
Combined Count	47		149	

Table A.11: Frequency table for B1k_assess

B1k	**1**	**2**	**3**	**4**
Count	2	12	65	119
Combined Count	14		174	

Table A.12: Frequency table for B1l_rel

B1l	**1**	**2**	**3**	**4**
Count	4	34	82	78
Combined Count	38		160	

Table A.13: Frequency table for B1m_lrnnds

B1m	**1**	**2**	**3**	**4**
Count	5	35	76	82
Combined Count	40		158	

Table A.14: Frequency table for B1mm_diff

B1mm	**1**	**2**	**3**	**4**
Count	5	42	79	72
Combined Count	47		151	

Table A.15: Frequency table for B1n_tech

B1n	**1**	**2**	**3**	**4**
Count	5	36	68	89
Combined Count	41		157	

Table A.16: Frequency table for B1o_tools

B1o	**1**	**2**	**3**	**4**
Count	7	34	74	83
Combined Count	41		157	

Table A.17: Frequency table for B1p_crit

B1p	**1**	**2**	**3**	**4**
Count	5	20	92	81
Combined Count	25		173	

Table A.18: Frequency table for B1q_cmplx

B1q	**1**	**2**	**3**	**4**
Count	6	27	94	71
Combined Count	33		165	

Table A.19: Frequency table for B1r_intdsc

B1r	**1**	**2**	**3**	**4**
Count	14	30	80	74
Combined Count	44		154	

Table A.20: Frequency table for B1s_glbl

B1s	**1**	**2**	**3**	**4**
Count	11	39	80	68
Combined Count	50		148	

Table A.21: Frequency table for B1t_concl

B1t	**1**	**2**	**3**	**4**
Count	11	33	83	71
Combined Count	44		154	

Table A.22: Frequency table for C1a_safe

C1a	**1**	**2**	**3**	**4**
Count	4	12	49	133
Combined Count	16		182	

Table A.23: Frequency table for C1b_dig

C1b	**1**	**2**	**3**	**4**
Count	1	12	69	116
Combined Count	13		185	

Table A.24: Frequency table for C1c_pos

C1c	**1**	**2**	**3**	**4**
Count	0	15	69	114
Combined Count	15		183	

Table A.25: Frequency table for C2a_val

C2a	**1**	**2**	**3**	**4**
Count	7	19	53	119
Combined Count	26		172	

Table A.26: Frequency table for C2b_needs

C2b	**1**	**2**	**3**	**4**
Count	13	24	65	96
Combined Count	37		161	

Table A.27: Frequency table for C2c_seek

C2c	**1**	**2**	**3**	**4**
Count	6	20	75	97
Combined Count	26		172	

Table A.28: Frequency table for C2d_infl

C2d	**1**	**2**	**3**	**4**
Count	6	11	55	126
Combined Count	17		181	

Table A.29: Frequency table for C3a_sched

C3a	**1**	**2**	**3**	**4**
Count	17	46	43	92
Combined Count	63		135	

Table A.30: Frequency table for C3b_tech

C3b	**1**	**2**	**3**	**4**
Count	11	19	60	108
Combined Count	30		168	

Table A.31: Frequency table for C3c_space

C3c	**1**	**2**	**3**	**4**
Count	5	25	67	101
Combined Count	30		168	

Table A.32: Frequency table for C3d_supp

C3d	**1**	**2**	**3**	**4**
Count	6	21	73	98
Combined Count	27		171	

Table A.33: Frequency table for D1b_rec

D1b	**1**	**2**	**3**	**4**
Count	6	18	52	122
Combined Count	24		174	

Table A.34: Frequency table for D1c_happy

D1c	**1**	**2**	**3**	**4**
Count	12	24	49	113
Combined Count	36		162	

Table A.35: Frequency table for D1e_rwds

D1e	**1**	**2**	**3**	**4**
Count	3	18	50	127
Combined Count	21		177	

Table A.36: Frequency table for D1f_pre

D1f	**1**	**2**	**3**	**4**
Count	7	15	75	101
Combined Count	22		176	

APPENDIX B: ANALYSIS FOR ALL LINEAR REGRESSION MODELS

Table B.1: Average B1 ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
Average B1	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.5415	0.2584	<0.001	0.6752	0.0444	<0.001
C1a	0.0019	0.0652	0.977			
C1b	0.0124	0.0825	0.881			
C1c	0.1180	0.0830	0.157			
C2a	0.0673	0.0575	0.243	0.1259	0.0506	0.014
C2b	-0.0356	0.0531	0.504			
C2c	0.1146	0.0653	0.081	0.2251	0.0524	<0.001
C2d	0.0668	0.0558	0.233			
C3a	0.0495	0.0422	0.242			
C3b	0.0741	0.0530	0.164			
C3c	-0.0276	0.0568	0.628			
C3d	0.0628	0.0594	0.292			
	Adj R2 = 0.2165 P-value <0.001			Adj R2 = 0.191 P-value <0.001		

Table B.2: B1a_lic ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
B1a_lic	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.21004	0.29275	<0.001	2.2264	0.2715	<0.001
C1a	0.09970	0.07389	0.179	0.0993	0.0703	0.160
C1b	0.15882	0.09344	0.091	0.1857	0.0715	0.010
C1c	-0.0237	0.09404	0.801			
C2a	0.04244	0.06508	0.515			
C2b	-0.1435	0.06020	0.018	-0.1160	0.0536	0.032
C2c	0.04589	0.07400	0.536			
C2d	0.00652	0.06324	0.918			
C3a	0.01904	0.04777	0.691			
C3b	0.14522	0.06001	0.016	0.1636	0.0561	0.004
C3c	-0.1039	0.06439	0.108	-0.1080	0.0625	0.086
C3d	0.13370	0.06728	0.048	0.1489	0.0633	0.020
	Adj R2 = 0.118 P-value <0.001			Adj R2 = 0.134 P-value <0.001		

Table B.3: B1b_strat ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1b_strat	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.096	0.3413	<0.001	2.1458	0.2666	<0.001
C1a	0.1078	0.0862	0.212	0.1690	0.0663	0.012
C1b	0.0982	0.1090	0.369			
C1c	0.0987	0.1096	0.369			
C2a	0.0726	0.0759	0.340			
C2b	-0.0487	0.0702	0.488			
C2c	-0.1053	0.0863	0.224			
C2d	0.0700	0.0737	0.344			
C3a	0.0325	0.0557	0.560			
C3b	0.1467	0.0700	0.037	0.1349	0.0535	0.012
C3c	-0.0708	0.751	0.347			
C3d	-0.0129	0.0784	0.869			
	Adj R2 = 0.056 P-value =0.025			Adj R2 = 0.069 P-value <0.001		

Table B.4: B1c_pers ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1c_pers	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.7506	0.3681	<0.001	1.9362	0.2740	<0.001
C1a	0.1020	0.0929	0.274			
C1b	-0.1134	0.1175	0.336			
C1c	0.1417	0.1183	0.232			
C2a	0.1340	0.0818	0.103	0.1364	0.0733	0.064
C2b	-0.0602	0.0757	0.428			
C2c	0.1692	0.0931	0.071	0.1845	0.0733	0.013
C2d	-0.0244	0.0795	0.759			
C3a	0.0127	0.0601	0.833			
C3b	0.0475	0.0755	0.530			
C3c	0.0713	0.0810	0.380	0.1080	0.0666	0.106
C3d	-0.0034	0.0846	0.968			
	Adj R2 = 0.104 P-value <0.001			Adj R2 = 0.119 P-value <0.001		

Table B.5: B1d_prior ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1d_prior	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.6648	0.3670	<0.001	1.7715	0.2922	<0.001
C1a	0.0201	0.0926	0.829			
C1b	0.0751	0.1172	0.522			
C1c	0.1841	0.1179	0.120	0.2386	0.0834	0.005
C2a	0.0851	0.0816	0.319			
C2b	-0.1265	0.0755	0.095			
C2c	0.0426	0.0928	0.647			
C2d	-0.0099	0.0793	0.901			
C3a	0.0762	0.0599	0.205	0.0937	0.0534	0.081
C3b	0.1334	0.0752	0.078	0.1242	0.0624	0.048
C3c	-0.0342	0.0807	0.673			
C3d	0.0363	0.0843	0.667			
	Adj R2 = 0.106 P-value <0.001			Adj R2 = 0.124 P-value <0.001		

Table B.6: B1e_long ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1e_long	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.2606	0.3982	0.002	1.3501	0.3342	<0.001
C1a	-0.0608	0.1005	0.546			
C1b	0.0442	0.1271	0.729			
C1c	0.2816	0.1279	0.029	0.3126	0.0939	0.001
C2a	0.1431	0.0885	0.108	0.1691	0.0759	0.027
C2b	-0.0129	0.0819	0.875			
C2c	0.0470	0.1006	0.641			
C2d	0.0651	0.0860	0.450			
C3a	0.0375	0.0650	0.565			
C3b	0.1650	0.0816	0.045	0.1737	0.0738	0.020
C3c	-0.1239	0.0876	0.159	-0.1298	0.0806	0.109
C3d	-0.0302	0.0915	0.742			
	Adj R2 = 0.131 P-value <0.001			Adj R2 = 0.153 P-value <0.001		

Table B.7: B1f_adjust ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1f_adjust	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.776	0.3755	0.002	1.3248	0.3186	<0.001
C1a	0.0357	0.0948	0.707			
C1b	0.1042	0.1198	0.386	0.1499	0.0930	0.109
C1c	0.0657	0.1206	0.587			
C2a	0.0280	0.0835	0.738			
C2b	-0.0021	0.0772	0.979			
C2c	0.1407	0.0949	0.140	0.1675	0.0824	0.043
C2d	-0.0229	0.0811	0.778			
C3a	0.0894	0.0613	0.146	0.1147	0.0562	0.043
C3b	0.0317	0.0770	0.681			
C3c	0.1046	0.0826	0.207	0.1522	0.0663	0.023
C3d	0.0484	0.0863	0.575			
	Adj R2 = 0.151 P-value <0.001			Adj R2 = 0.174 P-value <0.001		

Table B.8: B1g_clear ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1g_clear	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.4556	0.2978	<0.001	2.4997	0.2560	<0.001
C1a	-0.1407	0.0752	0.063	-0.1350	0.0674	0.047
C1b	-0.0015	0.0950	0.988			
C1c	0.1403	0.0957	0.144	0.1507	0.0817	0.066
C2a	-0.0236	0.0662	0.721			
C2b	-0.0186	0.0612	0.762			
C2c	0.1984	0.0753	0.009	0.1869	0.0617	0.003
C2d	-0.0259	0.0643	0.687			
C3a	0.0097	0.0486	0.841			
C3b	0.0627	0.0610	0.306	0.1073	0.0494	0.031
C3c	0.0586	0.0655	0.372			
C3d	0.0673	0.0684	0.327			
	Adj R2 = 0.117 P-value <0.001			Adj R2 = 0.137 P-value <0.001		

Table B.9: B1h_mod ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1h_mod	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.1383	0.3561	0.002	1.1800	0.3360	<0.001
C1a	-0.0346	0.0899	0.701			
C1b	0.1162	0.1137	0.308	0.1865	0.0897	0.039
C1c	0.1054	0.1144	0.358			
C2a	0.0826	0.0792	0.298			
C2b	-0.1139	0.0732	0.122	-0.0896	0.0638	0.162
C2c	0.2171	0.0900	0.017	0.2569	0.0840	0.003
C2d	0.1313	0.0769	0.090	0.1414	0.0742	0.058
C3a	0.0488	0.0581	0.402			
C3b	0.0813	0.0730	0.267	0.1212	0.0596	0.043
C3c	0.0159	0.0783	0.839			
C3d	-0.0190	0.0818	0.817			
	Adj R2 = 0.187 P-value <0.001			Adj R2 = 0.200 P-value <0.001		

Table B.10: B1i_fdbk ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1i_fdbk	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.2262	0.3551	<0.001	1.1637	0.3164	<0.001
C1a	-0.1299	0.0896	0.149			
C1b	0.0385	0.1133	0.734			
C1c	0.2422	0.1140	0.035	0.2480	0.0846	0.004
C2a	0.1010	0.0789	0.202	0.1323	0.0687	0.056
C2b	0.0306	0.0730	0.675			
C2c	0.0602	0.0897	0.503			
C2d	0.0857	0.0767	0.265	0.1008	0.0710	0.157
C3a	0.0298	0.0579	0.607			
C3b	0.0038	0.0728	0.958			
C3c	0.0436	0.0781	0.577			
C3d	0.1047	0.0816	0.201	0.1358	0.0685	0.049
	Adj R2 = 0.170 P-value <0.001			Adj R2 = 0.184 P-value <0.001		

Table B.11: B1j_self ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1j_self	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.2360	0.4135	0.003	1.5972	0.2923	<0.001
C1a	-0.0209	0.1044	0.842	0.1570	0.0812	0.055
C1b	-0.0136	0.1320	0.918			
C1c	0.1178	0.1328	0.376			
C2a	0.1013	0.0919	0.272			
C2b	0.0319	0.0850	0.708			
C2c	0.0874	0.1045	0.404	0.1763	0.0836	0.036
C2d	0.0860	0.0893	0.337			
C3a	0.0440	0.0675	0.515			
C3b	0.0508	0.0848	0.549	0.1011	0.0698	0.149
C3c	0.0193	0.0910	0.832			
C3d	0.0364	0.0950	0.702			
	Adj R2 = 0.0857 P-value= 0.003			Adj R2 = 0.105 P-value <0.001		

Table B12: B1k_assess ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1k_assess	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.3714	0.3417	<0.001	2.5851	0.2267	<0.001
C1a	-0.0125	0.0862	0.88			
C1b	0.1426	0.1091	0.19			
C1c	-0.0350	0.1098	0.75			
C2a	-0.0817	0.0760	0.28			
C2b	0.0492	0.0703	0.48			
C2c	0.1074	0.0864	0.22	0.1760	0.0623	0.005
C2d	-0.0174	0.0738	0.81			
C3a	0.0450	0.0558	0.42			
C3b	0.0937	0.0700	0.18	0.1046	0.0559	0.0629
C3c	-0.0194	0.0752	0.80			
C3d	0.0765	0.0785	0.33			
	Adj R2 = 0.055 P-value =0.027			Adj R2 = 0.0741 P-value <0.001		

Table B.13: B1l_rel ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1l_rel	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.8686	0.4089	<0.001	2.231	0.236	<0.001
C1a	-0.0524	0.1032	0.61			
C1b	0.0425	0.1305	0.74			
C1c	0.1127	0.1313	0.39			
C2a	0.0582	0.0909	0.52			
C2b	0.0137	0.0841	0.87			
C2c	0.1541	0.1034	0.14	0.286	0.069	<0.001
C2d	0.0703	0.0883	0.43			
C3a	0.0624	0.0667	0.35			
C3b	0.0223	0.0838	0.79			
C3c	-0.0140	0.0899	0.88			
C3d	-0.0803	0.0940	0.39			
	Adj R2 = 0.0484 P-value=0.040			Adj R2 = 0.0757 P-value <0.001		

Table B.14: B1m_lrnnds ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1m_lrnnds	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.4316	0.4057	<0.001	1.4622	0.3592	<0.001
C1a	-0.0988	0.1024	0.336			
C1b	0.1424	0.1295	0.273	0.1867	0.0951	0.051
C1c	0.0727	0.1303	0.578			
C2a	0.1522	0.0902	0.093	0.2025	0.0811	0.013
C2b	0.0824	0.083	0.325			
C2c	0.0453	0.1025	0.659			
C2d	0.0667	0.0876	0.448			
C3a	0.0879	0.0662	0.186	0.0915	0.0609	0.134
C3b	0.1426	0.0831	0.088	0.1536	0.0780	0.050
C3c	-0.1311	0.0892	0.143	-0.1259	0.0825	0.129
C3d	-0.0389	0.0932	0.677			
	Adj R2 = 0.126 P-value <0.001			Adj R2 = 0.138 P-value <0.001		

Table B.15: B1mm_diff ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
B1mm_diff	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.1789	0.4107	0.005	1.4409	0.2938	<0.001
C1a	0.0126	0.1036	0.904			
C1b	0.1150	0.1311	0.381			
C1c	-0.0575	0.1319	0.663			
C2a	-0.0776	0.0913	0.396			
C2b	0.0788	0.0845	0.352			
C2c	0.1906	0.1038	0.068	0.2737	0.0774	<0.001
C2d	0.1957	0.0887	0.029	0.2128	0.0817	0.010
C3a	0.0296	0.0670	0.659			
C3b	0.0908	0.0842	0.281			
C3c	-0.0329	0.0903	0.715			
C3d	0.0237	0.0944	0.801			
	Adj R2 = 0.117 P-value <0.001			Adj R2 = 0.14 P-value <0.001		

Table B.16: B1n_tech ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1n_tech	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.9460	0.4220	<0.001	2.0805	.3918	<0.001
C1a	0.0979	0.1065	0.359			
C1b	-0.2296	0.1347	0.090	-0.2182	0.1039	0.037
C1c	-0.0128	0.1355	0.925			
C2a	-0.0157	0.0938	0.867			
C2b	-0.0686	0.0868	0.430			
C2c	0.2193	0.1067	0.041	0.2158	0.0947	0.0238
C2d	0.1436	0.0912	0.117	0.1361	0.0861	0.1153
C3a	0.0123	0.0689	0.858			
C3b	0.0517	0.0865	0.551			
C3c	-0.0170	0.0928	0.855			
C3d	0.1984	0.0970	0.042	0.2122	0.0783	0.007
	Adj R2 = 0.0927 P-value =0.002			Adj R2 = 0.117 P-value <0.001		

Table B.17: B1o_tools ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1o_tools	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.5695	0.4243	<0.001	1.5437	0.3133	<0.001
C1a	0.0913	0.1071	0.395			
C1b	-0.1473	0.1354	0.278			
C1c	-0.0325	0.1363	0.812			
C2a	0.0554	0.0943	0.558			
C2b	-0.0826	0.0873	0.345			
C2c	0.1345	0.1073	0.211			
C2d	0.1803	0.0917	0.051	0.2168	0.0812	0.008
C3a	0.0458	0.0692	0.509			
C3b	0.0404	0.0870	0.643			
C3c	-0.156	0.0933	0.868			
C3d	0.2054	0.0975	0.037	0.2614	0.0763	<0.001
	Adj R2 = 0.103 P-value <0.001			Adj R2 = 0.12 P-value <0.001		

Table B.18: B1p_crit ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1p_crit	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.5353	0.3657	<0.001	1.7258	0.2529	<0.001
C1a	0.0657	0.0923	0.478			
C1b	-0.1477	0.1167	0.207			
C1c	0.1559	0.1175	0.186			
C2a	0.0905	0.0813	0.267			
C2b	-0.0070	0.0752	0.926			
C2c	0.1761	0.0924	0.058	0.2465	0.0672	<0.001
C2d	0.0403	0.0790	0.611			
C3a	0.0246	0.0597	0.681			
C3b	0.0231	0.0750	0.758			
C3c	-0.0752	0.0804	0.351			
C3d	0.1635	0.0840	0.053	0.2137	0.0666	0.002
	Adj R2 = 0.143 P-value <0.001			Adj R2 = 0.155 P-value <0.001		

Table B.19: B1q_cmplx ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1q_cmplx	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.3977	0.3857	<0.001	1.4529	0.3149	<0.001
C1a	0.0458	0.0973	0.639			
C1b	-0.0826	0.1231	0.503			
C1c	0.1687	0.1239	0.175	0.1479	0.0965	0.127
C2a	0.0780	0.0857	0.364			
C2b	-0.0551	0.0793	0.488			
C2c	0.1498	0.0975	0.126	0.1544	0.0833	0.065
C2d	0.0263	0.0833	0.752			
C3a	0.0788	0.0629	0.212	0.0940	0.0608	0.124
C3b	0.0655	0.0790	0.408			
C3c	-0.0477	0.0848	0.575			
C3d	0.0957	0.0886	0.282	0.1170	0.0760	0.125
	Adj R2 = 0.12 P-value <0.001			Adj R2 = 0.139 P-value <0.001		

Table B.20: B1r_intdsc ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1r_intdsc	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.6502	0.4413	0.142	0.6282	0.3903	0.1091
C1a	0.0075	0.1114	0.947			
C1b	-0.0320	0.1409	0.821			
C1c	0.3125	0.1418	0.029	0.3097	0.1118	0.006
C2a	0.1110	0.0981	0.259			
C2b	-0.1460	0.0908	0.109	-0.1175	0.0808	0.147
C2c	0.1353	0.1115	0.227	0.1849	0.0988	0.063
C2d	0.1820	0.0953	0.058	0.1816	0.0926	0.0513
C3a	0.0762	0.0720	0.291			
C3b	-0.0257	0.0905	0.776			
C3c	-0.0481	0.0971	0.621			
C3d	0.1307	0.1014	0.199	0.1484	0.0862	0.0867
	Adj R2 = 0.152 P-value <0.001			Adj R2 = 0.165 P-value <0.001		

Table B.21: B1s_glbl ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1s_glbl	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.9659	0.4357	0.028	0.9475	0.3634	0.010
C1a	-0.0049	0.1099	0.964			
C1b	-0.0809	0.1391	0.561			
C1c	0.2577	0.1399	0.067	0.2149	0.1112	0.055
C2a	0.1813	0.0968	0.063	0.1961	0.0935	0.037
C2b	-0.1289	0.0896	0.152	-0.1365	0.0835	0.1038
C2c	0.1188	0.1101	0.282			
C2d	0.0512	0.0941	0.587			
C3a	0.0677	0.0711	0.342			
C3b	0.0779	0.0893	0.384			
C3c	-0.0499	0.0958	0.603			
C3d	0.1164	0.1001	0.246	0.1757	0.0848	0.040
	Adj R2 = 0.129 P-value <0.001			Adj R2 = 0.144 P-value <0.001		

Table B.22: B1t_concl ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1t_concl	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.2410	0.4366	0.005	1.3217	0.3777	<0.001
C1a	-0.0902	0.1102	0.414			
C1b	0.0302	0.1394	0.829			
C1c	0.1823	0.1402	0.195	0.2290	0.0999	0.023
C2a	0.0992	0.0971	0.308			
C2b	-0.0197	0.0898	0.826			
C2c	0.0730	0.1104	0.509			
C2d	0.1026	0.0943	0.278	0.1287	0.0837	0.126
C3a	0.1085	0.0712	0.130	0.1648	0.0616	0.008
C3b	0.1048	0.0895	0.243			
C3c	-0.1088	0.0960	0.259			
C3d	0.0653	0.1003	0.516			
	Adj R2 = 0.102 P-value <0.001			Adj R2 = 0.11 P-value <0.001		

Table B.23: Average D ~ individual B1 + individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
Average D	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.1229	0.2846	0.668	0.1594	0.2187	0.467
B1a	0.0369	0.0717	0.607			
B1b	-0.0914	0.0684	0.171	-0.1219	0.0586	0.039
B1c	0.0971	0.0640	0.131	0.0996	0.0559	0.076
B1d	-0.0151	0.0668	0.822			
B1e	-0.0063	0.0545	0.908			
B1f	-0.0246	0.0557	0.659			
B1g	0.0630	0.0687	0.360			
B1h	0.2302	0.0651	0.001	0.2483	0.0539	<0.001
B1i	0.1138	0.0590	0.056	0.0962	0.0513	0.062
B1j	-0.0484	0.0556	0.385			
B1k	0.1952	0.0658	0.003	0.1999	0.0573	<0.001
B1l	0.0131	0.0566	0.818			
B1m	-0.0671	0.0610	0.273			
B1mm	0.0633	0.0542	0.244			
B1n	-0.0255	0.0836	0.761			
B1o	-0.0038	0.0816	0.962			
B1p	0.1251	0.0808	0.124	0.0799	0.0525	0.130
B1q	-0.0825	0.0847	0.332			
B1r	0.0306	0.0524	0.560			
B1s	0.0591	0.0639	0.356	0.0626	0.0450	0.166
B1t	0.0424	0.0640	0.509			
C1a	0.1765	0.0578	0.003	0.1789	0.0449	<0.001
C1b	-0.0518	0.0735	0.482			
C1c	0.0415	0.0736	0.843			
C2a	0.1955	0.0521	0.002	0.1944	0.0418	<0.001
C2b	0.0285	0.0488	0.560			
C2c	0.0391	0.0600	0.513			
C2d	-0.0295	0.0499	0.554			
C3a	0.0285	0.0365	0.436			
C3b	-0.0216	0.0469	0.645			
C3c	-0.0230	0.0510	0.652			
C3d	-0.0870	0.0539	0.108	-0.0753	0.0412	0.069
	Adj R2 = 0.591 P-value <0.001			Adj R2 = 0.621 P-value <0.001		

Table B.24: D1b_rec ~ individual B1 + individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
D1b_rec	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.0092	0.3920	0.981	0.2015	0.2759	0.466
B1a	0.1266	0.0988	0.202			
B1b	0.0813	0.0943	0.390	0.1211	0.0737	0.102
B1c	-0.0079	0.0881	0.929			
B1d	0.0556	0.0920	0.547			
B1e	-0.0289	0.0750	0.701			
B1f	-0.1361	0.0767	0.078	-0.1031	0.0638	0.108
B1g	0.0464	0.0947	0.6247			
B1h	0.2454	0.0897	0.007	0.2819	0.0748	<0.001
B1i	0.0188	0.0813	0.817			
B1j	0.0903	0.0766	0.240			
B1k	0.3677	0.0906	<0.001	0.4028	0.0764	<0.001
B1l	-0.0152	0.0779	0.8461			
B1m	0.0496	0.0840	0.556			
B1mm	-0.0223	0.0746	0.767			
B1n	0.0505	0.1152	0.662			
B1o	-0.0718	0.1124	0.524			
B1p	-0.0557	0.1113	0.618			
B1q	-0.0276	0.1166	0.813			
B1r	0.2095	0.0722	0.004	0.1868	0.0526	<0.001
B1s	-0.1047	0.0880	0.236			
B1t	0.0568	0.0882	0.520			
C1a	0.1299	0.0796	0.105			
C1b	-0.1565	0.1013	0.124			
C1c	0.04601685	0.1013	0.650			
C2a	0.1685	0.0718	0.020	0.1578	0.0559	0.005
C2b	-0.0604	0.0672	0.370			
C2c	0.1086	0.0827	0.191			
C2d	-0.0322	0.0687	0.640			
C3a	0.0529	0.0503	0.295	0.0743	0.0444	0.095
C3b	-0.1875	0.0645	0.004	-0.1538	0.0511	0.003
C3c	0.0106	0.0702	0.880			
C3d	0.0089	0.0742	0.905			
	Adj R2 = 0.487 P-value <0.001			Adj R2 = 0.5202 P-value <0.001		

Table B.25: D1c_happy ~ individual B1 + individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1c_happy	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.6703	0.5364	0.213	0.6001	0.3963	0.132
B1a	-0.0389	0.1351	0.774			
B1b	-0.2914	0.1290	0.025	-0.2630	0.1046	0.013
B1c	0.0892	0.1206	0.461			
B1d	-0.0364	0.1259	0.773			
B1e	0.0523	0.1028	0.611			
B1f	0.0584	0.1049	0.579			
B1g	0.0921	0.1296	0.478			
B1h	0.2637	0.1227	0.033	0.2909	0.1066	0.007
B1i	0.2062	0.1113	0.066	0.1908	0.1001	0.058
B1j	-0.0976	0.1049	0.353			
B1k	-0.0362	0.1241	0.771			
B1l	-0.0118	0.1066	0.912			
B1m	-0.1884	0.1150	0.103	-0.1864	0.0963	0.055
B1mm	0.1800	0.1021	0.080	0. 1614	0.0896	0.073
B1n	-0.1430	0.1577	0.366			
B1o	0.1272	0.1538	0.409			
B1p	0.1905	0.1523	0.213	0. 1933	0.1358	0.156
B1q	-0.2837	0.1596	0.077	-0. 2280	0.1457	0.119
B1r	-0.1253	0.0989	0.207	-0. 1235	0.0892	0.168
B1s	0.2650	0.1205	0.029	0. 3077	0.0956	0.002
B1t	0.1286	0.1207	0.288			
C1a	0.2515	0.1090	0.022	0. 2168	0. 0911	0.018
C1b	-0.0056	0.1386	0.968			
C1c	-0.0524	0.1387	0.706			
C2a	0.2052	0.092	0.038	0. 2129	0. 0874	0.016
C2b	0.1740	0.0920	0.060	0. 1695	0.0816	0.039
C2c	-0.0409	0.1132	0.718			
C2d	-0.0244	0.0940	0.796			
C3a	0.0418	0.0688	0.545			
C3b	0.1192	0.0883	0.179	0.1154	0.0747	0.124
C3c	-0.0293	0.0961	0.761			
C3d	-0.2252	0.1016	0.028	-0.2269	0.0875	0.010
	Adj R2 = 0.288 P-value <0.001			Adj R2 = 0.338 P-value <0.001		

Table B.26: D1e_rwds ~ individual B1 + individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1e_rwds	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.5383	0.3976	0.178	0.7819	0.2889	0.007
B1a	-0.0606	0.1002	0.546			
B1b	-0.1368	0.0956	0.154	-0.1531	0.0811	0.061
B1c	0.2411	0.0894	0.008	0.2314	0.799	0.004
B1d	-0.0198	0.0933	0.832			
B1e	-0.0592	0.0761	0.438			
B1f	0.0132	0.0778	0.866			
B1g	0.1189	0.0960	0.217			
B1h	0.2107	0.0910	0.022	0.2596	0.0725	<0.001
B1i	0.1372	0.0825	0.098			
B1j	-0.1052	0.0777	0.178			
B1k	0.1230	0.0920	0.183			
B1l	0.0249	0.0790	0.753			
B1m	-0.1496	0.0853	0.081			
B1mm	0.0886	0.0757	0.243			
B1n	-0.1279	0.1169	0.275	-0.0852	0.0602	0.158
B1o	0.0095	0.1140	0.933			
B1p	0.1874	0.1129	0.099	0.1204	0.0744	0.107
B1q	-0.0543	0.1183	0.647			
B1r	-0.0342	0.0733	0.641			
B1s	0.1468	0.0893	0.102	0.1065	0.0623	0.089
B1t	0.0090	0.0895	0.920			
C1a	0.1928	0.0807	0.018	0.1607	0.0629	0.011
C1b	0.0255	0.1027	0.804			
C1c	-0.0881	0.1028	0.393			
C2a	0.1997	0.0728	0.007	0.1792	0.0566	0.002
C2b	0.0348	0.0682	0.611			
C2c	0.0374	0.0839	0.657			
C2d	0.0151	0.0697	0.828			
C3a	-0.0213	0.0510	0.677			
C3b	0.0809	0.0655	0.218			
C3c	-0.0862	0.0712	0.228			
C3d	-0.0832	0.0753	0.271			
	Adj R2 = 0.381 P-value <0.001			Adj R2 = 0.406 P-value <0.001		

Table B.27: D1f_pre ~ individual B1 + individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1f_pre	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.7109	0.3598	0.049	-0.8168	0.2904	0.005
B1a	0.1206	0.0906	0.185	0.1196	0.0769	0.122
B1b	-0.0296	0.0865	0.733			
B1c	0.0659	0.0809	0.416			
B1d	-0.0596	0.0844	0.481			
B1e	0.0105	0.0689	0.879			
B1f	-0.0338	0.0704	0.632			
B1g	-0.0054	0.0869	0.951			
B1h	0.2011	0.0823	0.016	0.2407	0.0663	<0.001
B1i	0.0931	0.0746	0.214			
B1j	-0.0813	0.0703	0.250			
B1k	0.3262	0.0832	<0.001	0.3235	0.0719	<0.001
B1l	0.0543	0.0715	0.449			
B1m	0.0199	0.0771	0.797			
B1mm	0.0070	0.0685	0.919			
B1n	0.1183	0.1057	0.265			
B1o	-0.0802	0.1031	0.438			
B1p	0.1780	0.1022	0.083	0.2120	0.0599	<0.001
B1q	0.0358	0.1070	0.739			
B1r	0.0727	0.0663	0.275			
B1s	-0.0707	0.0808	0.383			
B1t	-0.0249	0.0809	0.759			
C1a	0.1320	0.0730	0.073	0.1013	0.0623	0.106
C1b	-0.0708	0.0929	0.447			
C1c	0.1528	0.0930	0.102	0.1349	0.0718	0.062
C2a	0.2087	0.0659	0.002	0.1885	0.0529	<0.001
C2b	-0.0344	0.0617	0.578			
C2c	0.0522	0.0759	0.492			
C2d	-0.0767	0.0630	0.225			
C3a	0.0407	0.0462	0.380			
C3b	-0.0991	0.0592	0.096	-0.1043	0.0462	0.025
C3c	0.0127	0.0644	0.844			
C3d	-0.0486	0.0681	0.477			
	Adj R2 = 0.555 P-value <0.001			Adj R2 = 0.584 P-value <0.001		

Table B.28: Average B1 ~ average C

Dependent Variable			
Average B1	Estimate	Standard Error	P-value
Intercept	1.5704	0.2239	<0.001
Average C	0.4981	0.0655	<0.001
	adj R2 = 0.0365 p-value <0.001		

Table B.29: B1a_lic ~ average C

Dependent Variable			
B1a	Estimate	Standard Error	P-value
Intercept	2.4696	0.2608	<0.001
Average C	0.3170	0.0763	<0.001
	adj R2 = 0.0763 p-value <0.001		

Table B.30: B1b_strat ~ average C

Dependent Variable			
B1b	Estimate	Standard Error	P-value
Intercept	2.3860	032964	<0.0001
Average C	0.3207	0.0867	<0.0001
	adj R2 = 0.0605 p-value <0.001		

Table B.31: B1c_pers ~ average C

Dependent Variable			
B1c	Estimate	Standard Error	P-value
Intercept	1.7112	0.3173	<0.0001
Average C	0.4936	0.0928	<0.0001
	adj R2 = 0.1216 p-value <0.001		

Table B.32: B1d_prior ~ average C

Dependent Variable			
B1d	Estimate	Standard Error	P-value
Intercept	1.8319	0.3216	<0.0001
Average C	0.4370	0.0941	<0.0001
	adj R2 = 0.0946 p-value <0.001		

Table B.33: B1e_long ~ average C

Dependent Variable			
B1e	Estimate	Standard Error	P-value
Intercept	1.3757	0.3495	0.0001
Average C	0.5316	0.1022	<0.0001
	adj R2 = 0.1168 p-value <0.001		

Table B.34: B1f_adjust ~ average C

Dependent Variable			
B1f	Estimate	Standard Error	P-value
Intercept	1.1653	0.3216	0.0003
Average C	0.6222	0.0941	<0.0001
	adj R2 = 0.1783 p-value <0.001		

Table B.35: B1g_clear ~ average C

Dependent Variable			
B1g	Estimate	Standard Error	P-value
Intercept	2.3609	0.2633	<0.0001
Average C	0.3447	0.0770	<0.0001
	adj R2 = 0.0881 p-value <0.001		

Table B.36: B1h_mod ~ average C

Dependent Variable			
B1h	Estimate	Standard Error	P-value
Intercept	1.3436	0.3142	<0.0001
Average C	0.5800	0.0919	<0.0001
	adj R2 = 0.1646 p-value <0.001		

Table B.37: B1i_fdbk ~ average C

Dependent Variable			
B1i	Estimate	Standard Error	P-value
Intercept	1.2749	0.3073	<0.0001
Average C	0.5973	0.0899	<0.0001
	adj R2 = 0.1797 p-value <0.001		

Table B.38: B1j_self ~ average C

Dependent Variable			
B1j	Estimate	Standard Error	P-value
Intercept	1.1877	0.3523	<0.0001
Average C	0.5544	0.1030	<0.0001
	adj R2 = 0.1242 p-value <0.001		

Table B.39: B1k_assess ~ average C

Dependent Variable			
B1k	Estimate	Standard Error	P-value
Intercept	2.3322	0.2945	<0.0001
Average C	0.3517	0.0862	<0.0001
	adj R2 = 0.0737 p-value <0.001		

Table B.40: B1l_rel ~ average C

Dependent Variable			
B1l	Estimate	Standard Error	P-value
Intercept	1.8473	0.352	<0.0001
Average C	0.3950	0.1032	0.0002
	adj R2 = 0.0648 p-value <0.001		

Table B.41: B1m_lrnnds ~ average C

Dependent Variable			
B1m	Estimate	Standard Error	P-value
Intercept	1.3312	0.3540	0.0002
Average C	0.5493	0.1036	<0.0001
	adj R2 = 0.1211 p-value <0.001		

Table B.42: B1mm_diff ~ average C

Dependent Variable			
B1mm	Estimate	Standard Error	P-value
Intercept	1.2354	0.3567	0.0007
Average C	0.5522	0.1043	<0.0001
	adj R2 = 0.1206 p-value <0.001		

Table B.43: B1n_tech ~ average C

Dependent Variable			
B1n	Estimate	Standard Error	P-value
Intercept	1.7982	0.3727	<0.0001
Average C	0.4200	0.1090	0.0002
	adj R2 = 0.0656 p-value <0.001		

Table B.44: B1o_tools ~ average C

Dependent Variable			
B1o	Estimate	Standard Error	P-value
Intercept	1.5008	0.3718	<0.0001
Average C	0.4961	0.1088	<0.0001
	adj R2 = 0.0913 p-value <0.001		

Table B.45: B1p_crit ~ average C

Dependent Variable			
B1p	Estimate	Standard Error	P-value
Intercept	1.4034	0.3176	<0.0001
Average C	0.5488	0.0929	<0.0001
	adj R2 = 0.1468 p-value <0.001		

Table B.46: B1q_cmplx ~ average C

Dependent Variable			
B1q	Estimate	Standard Error	P-value
Intercept	1.3184	0.3331	0.0001
Average C	0.5456	0.0974	<0.0001
	adj R2 = 0.1335 p-value <0.001		

Table B.47: B1r_intdsc ~ average C

Dependent Variable			
B1r	Estimate	Standard Error	P-value
Intercept	0.9108	0.3876	0.0198
Average C	0.6423	0.1134	<0.0001
	adj R2 = 0.1363 p-value <0.001		

Table B.48: B1s_glbl ~ average C

Dependent Variable			
B1s	Estimate	Standard Error	P-value
Intercept	0.9933	0.3799	0.0096
Average C	0.6045	0.1111	<0.0001
	adj R2 = 0.1267 p-value <0.001		

Table B.49: B1t_concl ~ average C

Dependent Variable			
B1t	Estimate	Standard Error	P-value
Intercept	1.2002	0.3783	0.0018
Average C	0.5567	0.1107	<0.0001
	adj R2 = 0.1098 p-value <0.001		

Table B.50: Average D ~ average B1 + average C

Dependent Variable			
Average D	Estimate	Standard Error	P-value
Intercept	0.1829	0.2297	0.427
Average B1	0.6350	0.0655	<0.0001
Average C	0.3465	0.0684	<0.0001
	adj R2 = 0.5202 p-value <0.001		

Table B.51: D1b_rec ~ average B1 + average C

Dependent Variable			
D1b	Estimate	Standard Error	P-value
Intercept	0.3341	0.3156	0.291
Average B1	0.8729	0.0900	<0.0001
Average C	0.0861	0.0939	0.360
	adj R2 = 0.4009 p-value <0.001		

Table B.52: D1c_happy ~ average B1 + average C

Dependent Variable			
D1c	Estimate	Standard Error	P-value
Intercept	0.1449	0.4162	0.7281
Average B1	0.3306	0.1187	0.0059
Average C	0.6239	0.1239	<0.0001
	adj R2 = 0.2282 p-value <0.001		

Table B.53: D1e_rwds ~ average B1 + average C

Dependent Variable			
D1e	Estimate	Standard Error	P-value
Intercept	0.5547	0.3102	0.0753
Average B1	0.5032	0.0885	<0.0001
Average C	0.3933	0.0923	<0.0001
	adj R2 = 0.3215 p-value <0.001		

Table B.54: D1f_pre ~ average B1 + average C

Dependent Variable			
D1f	Estimate	Standard Error	P-value
Intercept	-0.3021	0.2880	0.2956
Average B1	0.8334	0.0821	<0.0001
Average C	0.2826	0.0857	0.0012
	adj R2 = 0.0365 p-value <0.001		

APPENDIX C: ANALYSIS FOR ALL LOGISTIC REGRESSION MODELS

Table C.1: B1a_lic ~ average C

Dependent Variable			
B1a	Estimate	Standard Error	P-value
Intercept	-0.568	1.549	0.6710
Average C	4.342	1.880	0.0209
	McFadden R2 = 0.0367 df=2		

Table C.2: B1b_strat ~ average C

Dependent Variable			
B1b	Estimate	Standard Error	P-value
Intercept	1.266	1.681	0.451
Average C	1.672	1.908	0.381
	McFadden R2 = -0.0143 df=2		

Table C.3: B1c_pers ~ average C

Dependent Variable			
B1c	Estimate	Standard Error	P-value
Intercept	0.2633	1.3142	0.841
Average C	2.1849	1.4995	0.145
	McFadden R2 = -0.0004 df=2		

Table C.4: B1d_prior ~ average C

Dependent Variable			
B1d	Estimate	Standard Error	P-value
Intercept	-0.3219	1.2342	0.7943
Average C	2.7406	1.4190	0.0534
	McFadden R2 = 0.0104 df=2		

Table C.5: B1e_long ~ average C

Dependent Variable			
B1e	Estimate	Standard Error	P-value
Intercept	-1.865	1.108	0.0923
Average C	4.071	1.283	0.0015
	McFadden R2 = 0.0464 df=2		

Table C.6: B1f_adjust ~ average C

Dependent Variable			
B1f	Estimate	Standard Error	P-value
Intercept	-1.327	1.099	0.2272
Average C	3.9393	1.261	0.0072
	McFadden R2 = 0.0285 df=2		

Table C.7: B1g_clear ~ average C

Dependent Variable			
B1g	Estimate	Standard Error	P-value
Intercept	3.2536	2.5577	0.203
Average C	0.0588	2.8217	0.983
	McFadden R2 = -0.03303 df=2		

Table C.8: B1h_mod ~ average C

Dependent Variable			
B1h	Estimate	Standard Error	P-value
Intercept	-0.6814	1.2284	0.5791
Average C	3.2263	1.4250	0.0236
	McFadden R2 = 0.0204 df=2		

Table C.9: B1i_fdbk ~ average C

Dependent Variable			
B1i	Estimate	Standard Error	P-value
Intercept	1.208	1.426	0.397
Average C	1.101	1.598	0.491
	McFadden R2 = -0.0119 df=2		

Table C.10: B1j_self ~ average C

Dependent Variable			
B1j	Estimate	Standard Error	P-value
Intercept	-1.788	1.052	0.0891
Average C	3.560	1.199	0.0030
	McFadden R2 = 0.0338 df=2		

Table C.11: B1k_assess ~ average C

Dependent Variable			
B1k	Estimate	Standard Error	P-value
Intercept	-0.4626	1.4437	0.749
Average C	3.7159	1.7139	0.030
	McFadden R2 = 0.0241 df=2		

Table C.12: B1l_rel ~ average C

Dependent Variable			
B1l	Estimate	Standard Error	P-value
Intercept	0.08914	1.1304	0.937
Average C	1.6736	1.2710	0.188
	McFadden R2 = -0.0019 df=2		

Table C.13: B1m_lrnnds ~ average C

Dependent Variable			
B1m	Estimate	Standard Error	P-value
Intercept	-0.6419	1.090	0.556
Average C	2.4705	1.2361	0.046
	McFadden R2 = 0.0098 df=2		

Table C.14: B1mm_diff ~ average C

Dependent Variable			
B1mm	Estimate	Standard Error	P-value
Intercept	0.1349	1.0784	0.900
Average C	1.3224	1.2045	0.272
	McFadden R2 = -0.0041 df=2		

Table C.15: B1n_tech ~ average C

Dependent Variable			
B1n	Estimate	Standard Error	P-value
Intercept	-1.687	1.075	0.1165
Average C	3.639	1.232	0.0031
	McFadden R2 = 0.0353 df=2		

Table C.16: B1o_tools ~ average C

Dependent Variable			
B1o	Estimate	Standard Error	P-value
Intercept	-0.2908	1.1103	0.7934
Average C	2.1081	1.2547	0.0929
	McFadden R2 = 0.0038 df=2		

Table C.17: B1p_crit ~ average C

Dependent Variable			
B1p	Estimate	Standard Error	P-value
Intercept	-0.5767	1.2494	0.6444
Average C	3.1687	1.4497	0.0288
	McFadden R2 = 0.0185 df=2		

Table C.18: B1q_cmplx ~ average C

Dependent Variable			
B1q	Estimate	Standard Error	P-value
Intercept	-0.8526	1.1489	0.4581
Average C	3.0810	1.3212	0.0197
	McFadden R2 = 0.0198 df=2		

Table C.19: B1r_intdsc ~ average C

Dependent Variable			
B1r	Estimate	Standard Error	P-value
Intercept	1.541	1.304	0.237
Average C	0.203	1.441	0.888
	McFadden R2 = -0.0118 df=2		

Table C.20: B1s_glbl ~ average C

Dependent Variable			
B1s	Estimate	Standard Error	P-value
Intercept	-0.5806	1.0671	0.5864
Average C	2.2442	1.2042	0.0624
	McFadden R2 = 0.0068 df=2		

Table C.21: B1t_concl ~ average C

Dependent Variable			
B1t	Estimate	Standard Error	P-value
Intercept	-0.9283	1.0967	0.3973
Average C	2.8854	1.2511	0.0211
	McFadden R2 = 0.0173 df=2		

Table C.22: D1b_rec ~ average B1 + average C

Dependent Variable			
D1b	Estimate	Standard Error	P-value
Intercept	-4.888	1.590	0.002
Average B1	5.209	1.359	<0.001
Average C	3.585	1.621	0.027
	McFadden R2 = 0.1755 df=3		

Table C.23: D1c_happy ~ average B1 + average C

Dependent Variable			
D1c	Estimate	Standard Error	P-value
Intercept	-3.3990	1.403	0.005
Average B1	3.094	1.166	0.008
Average C	3.977	1.441	0.006
	McFadden R2 = 0.0984 df=3		

Table C.24: D1e_rwds ~ average B1 + average C

Dependent Variable			
D1e	Estimate	Standard Error	P-value
Intercept	-3.157	1.576	0.045
Average B1	4.927	1.325	<0.001
Average C	1.744	1.661	0.294
	McFadden R2 = 0.1194 df=3		

Table C.25: D1f_pre ~ average B1 + average C

Dependent Variable			
D1f	Estimate	Standard Error	P-value
Intercept	-3.795	1.758	0.031
Average B1	6.392	1.545	<0.001
Average C	1.523	1.850	0.410
	McFadden R2 = 0.1903 df=3		

Table C.26: B1a_lic ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1a_lic	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.6404	2.1843	0.769	0.6979	0.8104	0.389
C1a	0.2402	1.3517	0.859			
C1b	-0.6396	1.5342	0.677			
C1c	0.6117	1.3434	0.649			
C2a	1.4237	1.0442	0.173	1.5185	0.7770	0.051
C2b	-0.5692	1.3556	0.675			
C2c	-0.0005	1.3579	1.000			
C2d	0.6796	1.2921	0.599			
C3a	-0.4413	0.9876	0.655			
C3b	0.4807	1.0698	0.653			
C3c	0.0043	1.1386	0.997			
C3d	1.1018	0.8984	0.220	1.3787	0.7749	0.075
	McFadden R2 = -0.182 df=12			McFadden R2 = 0.0386 df=3		

Table C.27: B1b_strat ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1b_strat	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	17.0602	1829.58	0.993	1.7918	0.6236	0.004
C1a	0.4245	1.2416	0.732			
C1b	-16.489	1829.58	0.993			
C1c	0.0854	1.3575	0.951			
C2a	0.5414	0.9959	0.587			
C2b	0.0951	0.9986	0.924			
C2c	0.4663	1.1017	0.672			
C2d	-0.0187	1.4779	0.990			
C3a	-0.0649	0.8043	0.936			
C3b	-0.4867	1.1756	0.679			
C3c	0.2424	1.0393	0.816			
C3d	1.1268	0.7889	0.153	1.1350	0.7113	0.111
	McFadden R2 = -0.183 df=12			McFadden R2 = 0.0017 df = 2		

Table C.28: B1c_pers ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1c_pers	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.8247	1.8387	0.321	0.9808	0.6770	0.147
C1a	-0.7101	1.3051	0.586			
C1b	-1.3145	1.2724	0.302			
C1c	0.9176	0.9436	0.331			
C2a	0.6944	0.7822	0.375			
C2b	-0.6741	0.9628	0.484			
C2c	0.3617	0.9095	0.691			
C2d	0.9754	0.9654	0.312	1.3218	0.7232	0.068
C3a	-0.0714	0.6479	0.912			
C3b	0.4750	0.9106	0.602			
C3c	0.8183	0.7259	0.260			
C3d	0.0443	0.7833	0.955			
	McFadden R2 = -0.107 df=12			McFadden R2 = 0.006 df=2		

Table C.29: B1d_prior ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1d_prior	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.1273	1.4318	0.929	1.0116	0.5839	0.083
C1a	0.3417	0.9177	0.710			
C1b	0.4194	0.8657	0.628			
C1c	0.7383	0.8219	0.369	1.2040	0.6344	0.058
C2a	-0.1632	0.8012	0.839			
C2b	-0.2091	0.7664	0.785			
C2c	0.6941	0.7558	0.360			
C2d	-0.0233	0.9541	0.981			
C3a	0.3534	0.5671	0.533			
C3b	-0.5868	0.8874	0.508			
C3c	0.9222	0.6709	0.169			
C3d	-0.179	0.7573	0.820			
	McFadden R2 = -0.111 df=12			McFadden R2 = 0.008 df=2		

Table C.30: B1e_long ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1e_long	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-2.1555	1.3580	0.113	-1.6623	0.9428	0.078
C1a	-0.1526	0.8370	0.855			
C1b	-0.1179	0.8062	0.884			
C1c	1.1987	0.7711	0.120	1.3602	0.6107	0.026
C2a	0.6276	0.6413	0.328			
C2b	0.9533	0.6326	0.132	1.0305	0.5270	0.051
C2c	0.2878	0.6572	0.662			
C2d	1.3925	0.8152	0.088	1.3803	0.6888	0.045
C3a	-0.1893	0.5320	0.722			
C3b	0.4270	0.7543	0.571			
C3c	-0.6771	0.7765	0.383			
C3d	0.5674	0.6347	0.371			
	McFadden R2 = -0.030 df=12			McFadden R2 = 0.042 df= 4		

Table C.31: B1f_adjust ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1f_adjust	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-1.3480	1.3103	0.304	-0.7420	0.7194	0.302
C1a	0.4389	0.7582	0.563			
C1b	1.1699	0.7507	0.119	1.7065	0.6282	0.007
C1c	0.7199	0.7547	0.640			
C2a	-0.4381	0.7486	0.558			
C2b	0.5351	0.6356	0.400			
C2c	0.2182	0.6839	0.750			
C2d	0.5076	0.8115	0.532			
C3a	0.0573	0.5153	0.912			
C3b	-0.8486	0.8878	0.339			
C3c	0.1146	0.6824	0.867			
C3d	0.9306	0.5923	0.116	0.9797	0.5334	0.066
	McFadden R2 = -0.0365 df=12			McFadden R2 = 0.0406 df=3		

Table C.32: B1h_mod ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1h_mod	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	1.1449	2.133	0.592	0.3321	1.2060	0.783
C1a	0.8476	1.0280	0.410			
C1b	1.9486	1.1469	0.089	1.3469	0.7610	0.077
C1c	-1.3032	1.2229	0.287			
C2a	1.1511	0.7830	0.142			
C2b	-1.0439	0.9523	0.273			
C2c	1.7621	0.7322	0.016	1.6329	0.5896	0.006
C2d	-2.1990	1.6031	0.170	-1.7546	1.3202	0.184
C3a	-1.1579	0.6569	0.810			
C3b	0.4854	0.8949	0.588			
C3c	-1.2407	1.1823	0.294			
C3d	1.2024	0.7113	0.091	1.0902	0.6326	0.085
	McFadden R2 = -0.005 df=12			McFadden R2 = 0.0579 df=5		

Table C.33: B1j_self ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1j_self	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-2.1791	1.2881	0.091	-0.8793	0.7315	0.229
C1a	1.1573	0.7352	0.115			
C1b	-0.3947	0.8468	0.641			
C1c	0.4332	0.7523	0.565			
C2a	0.8118	0.6108	0.184			
C2b	-0.4048	0.6293	0.520			
C2c	0.8559	0.6178	0.166	0.9393	0.5135	0.067
C2d	1.3819	0.7625	0.070	1.5165	0.6481	0.019
C3a	0.4933	0.4584	0.282			
C3b	0.5377	0.6387	0.400			
C3c	-0.3500	0.6316	0.580			
C3d	-0.5670	0.6643	0.393			
	McFadden R2 = -0.125 df=12			McFadden R2 = 0.0279 df=3		

Table C.34: B1k_assess ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1k_assess	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	16.0404	1662.57	0.992	-0.7521	1.0476	0.473
C1a	-16.044	1662.57	0.992			
C1b	1.8874	1.5092	0.211	1.465	0.8581	0.088
C1c	-0.6726	1.6192	0.678			
C2a	-0.2448	1.1214	0.827			
C2b	-0.8596	1.2201	0.481			
C2c	1.8187	0.9363	0.052	1.3075	0.7528	0.082
C2d	1.2224	1.4207	0.390			
C3a	0.5282	0.8039	0.511			
C3b	1.4214	0.9090	0.118	1.3532	0.7675	0.080
C3c	0.1227	1.0099	0.899			
C3d	-1.8495	1.5829	0.243			
	McFadden R2 = -0.279 df=12			McFadden R2 = 0.0495 df=5		

Table C.35: B1l_rel ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1l_rel	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.2283	1.3466	0.865	0.8473	0.4879	0.083
C1a	0.9141	0.7882	0.246			
C1b	0.7131	0.9215	0.439			
C1c	-1.3485	1.0282	0.190			
C2a	0.5734	0.6499	0.378			
C2b	-0.3908	0.6621	0.555			
C2c	0.9078	0.6457	0.160	0.8311	0.5296	0.117
C2d	-0.3457	0.9318	0.711			
C3a	0.3171	0.4893	0.517			
C3b	0.6293	0.6318	0.319			
C3c	-0.2711	0.6739	0.687			
C3d	-0.1176	0.6472	0.856			
	McFadden R2 = -0.192 df=12			McFadden R2 = 0.0014 df=2		

Table C.36: B1m_lrnnds ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1m_lrnnds	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	15.1290	977.84	0.988	-0.8924	0.8390	0.288
C1a	1.7146	0.7880	0.030	1.0515	0.6592	0.111
C1b	-0.7475	0.9911	0.451			
C1c	1.1596	0.8353	0.165			
C2a	0.8729	0.6511	0.180			
C2b	0.2739	0.6234	0.660			
C2c	0.7366	0.6351	0.246	1.007	0.5242	0.056
C2d	-17.530	977.84	0.986			
C3a	0.9541	0.4932	0.053	0.8265	0.4104	0.044
C3b	0.5011	0.6942	0.471			
C3c	-0.8463	0.7598	0.265			
C3d	-0.1356	0.6901	0.844			
	McFadden R2 = -0.104 df=12			McFadden R2 = 0.009 df=4		

Table C.37: B1mm_diff ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
B1mm_diff	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.7534	1.4098	0.592	1.3017	0.8654	0.133
C1a	0.8949	0.7376	0.225			
C1b	-0.1883	0.9281	0.839			
C1c	0.0036	0.8154	0.997			
C2a	-0.9585	0.7975	0.229			
C2b	-0.1493	0.6530	0.819			
C2c	1.4399	0.6245	0.021	1.2190	0.4925	0.013
C2d	-0.4546	0.9654	0.638			
C3a	0.6021	0.4630	0.193			
C3b	0.5092	0.6451	0.430			
C3c	-1.5396	0.8436	0.068	-1.1511	0.7641	0.132
C3d	0.6601	0.5794	0.254			
	McFadden R2 = -0.123 df=12			McFadden R2 = 0.0263 df=3		

Table C.38: B1n_tech ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1n_tech	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-1.7124	1.2973	0.187	-1.2775	0.8537	0.135
C1a	-0.4501	0.8973	0.616			
C1b	0.9082	0.7796	0.244	1.2024	0.6468	0.063
C1c	0.0113	0.8024	0.989			
C2a	0.6829	0.6332	0.281			
C2b	-0.0316	0.6507	0.961			
C2c	0.4032	0.6549	0.538			
C2d	0.5680	0.8368	0.497			
C3a	0.1504	0.4855	0.757			
C3b	1.0769	0.6237	0.084	0.9911	0.5436	0.068
C3c	-0.5830	0.6714	0.385			
C3d	0.9159	0.5562	0.099	0.9419	0.5216	0.071
	McFadden R2 = -0.1427 df=12			McFadden R2 = 0.0279 df=4		

Table C.39: B1o_tools ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1o_tools	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.1492	1.3497	0.912	0.9015	0.8952	0.3139
C1a	0.9105	0.7586	0.230			
C1b	0.9457	0.8751	0.280			
C1c	-0.7717	0.9539	0.419			
C2a	1.0495	0.6603	0.112	0.9382	0.5687	0.099
C2b	-0.1877	0.6891	0.785			
C2c	-0.6276	0.7597	0.409			
C2d	0.0361	0.8304	0.202	1.4013	0.7527	0.063
C3a	0.5834	0.4865	0.231			
C3b	0.2589	0.7018	0.712			
C3c	-1.9450	0.8980	0.030	-1.5930	0.8822	0.071
C3d	0.7550	0.6007	0.209			
	McFadden R2 = -0.1485 df=12			McFadden R2 = 0.0147 df=4		

Table C.40: B1p_crit ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1p_crit	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.6585	1.7563	0.708	-0.3481	0.7532	0.644
C1a	0.1008	1.1521	0.930			
C1b	-1.4722	1.3121	0.262			
C1c	0.8263	0.9862	0.402			
C2a	-0.3053	0.9122	0.738			
C2b	0.2341	0.7912	0.767			
C2c	2.1383	0.7494	0.004	1.9599	0.5599	0.<0.001
C2d	-1.0699	1.5165	0.485			
C3a	-0.1526	0.6511	0.815			
C3b	1.1618	0.7536	0.123	1.0846	0.6563	0.098
C3c	0.2694	0.8411	0.749			
C3d	0.3523	0.7473	0.637			
	McFadden R2 = -0.1991 df=12			McFadden R2 = 0.0698 df=3		

Table C.41: B1q_cmplx ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1q_cmplx	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.1378	1.9882	0.285	1.4852	1.4953	0.321
C1a	-0.1615	1.1703	0.890			
C1b	-2.4540	1.4162	0.083	-1.5799	1.1922	0.185
C1c	1.2915	0.9861	0.190			
C2a	1.8222	0.7472	0.015	1.4992	0.6467	0.020
C2b	-0.5486	0.8158	0.501			
C2c	1.8780	0.7416	0.011	1.6100	0.6041	0.008
C2d	-3.3965	1.8012	0.060	-1.7313	1.3584	0.203
C3a	-0.7597	0.6643	0.253			
C3b	0.6768	0.7779	0.384			
C3c	0.9821	0.7230	0.174			
C3d	0.8996	0.6578	0.171	1.0172	0.6168	0.099
	McFadden R2 = -0.1023 df=12			McFadden R2 = 0.0661 df=6		

Table C.42: B1r_intdsc ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1r_intdsc	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	18.339	1404.45	0.990	06931	0.6124	0.2577
C1a	1.6977	0.7826	0.030	1.1239	0.6479	0.0828
C1b	-1.3143	1.2825	0.306			
C1c	-0.5663	0.9859	0.566			
C2a	0.8875	0.7288	0.223			
C2b	-0.6912	0.7410	0.351			
C2c	1.1720	0.7151	0.101			
C2d	-1.2602	1.2370	0.307			
C3a	-0.0328	0.5753	0.955			
C3b	-17.387	1404.44	0.990			
C3c	0.1437	0.7758	0.853			
C3d	0.5873	0.6547	0.190			
	McFadden R2 = -0.1461 df=12			McFadden R2 = 0.0039 df=2		

Table C.43: B1s_glbl ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1s_glbl	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	2.1504	1.8263	0.239	1.9183	1.2137	0.114
C1a	-1.3028	1.3375	0.330			
C1b	0.2614	0.9409	0.781			
C1c	0.7537	0.8256	0.361			
C2a	1.4808	0.6501	0.023	1.7516	0.6094	0.004
C2b	-0.7582	0.7108	0.286	-0.9521	0.6727	0.157
C2c	1.4783	0.6539	0.024	1.7423	0.6120	0.004
C2d	0.5001	0.9719	0.607			
C3a	0.5988	0.4912	0.223			
C3b	0.2647	0.7207	0.713			
C3c	-0.4701	0.7336	0.522			
C3d	-3.2504	1.3928	0.020	2.8838	1.2230	0.018
	McFadden R2 = -0.071 df=12			McFadden R2 = 0.1706 df=5		

Table C.44: B1t_concl ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
b1t_concl	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.0832	1.4282	0.954	0.7500	0.6529	0.231
C1a	0.3124	0.9352	0.738			
C1b	-0.2848	0.9669	0.768			
C1c	0.6213	0.8056	0.441			
C2a	0.7683	0.6612	0.245			
C2b	-0.8384	0.7592	0.270			
C2c	0.6593	0.6786	0.331			
C2d	-0.4781	1.0653	0.654			
C3a	0.9124	0.4783	0.056	0.9400	0.4521	0.038
C3b	1.0570	0.6110	0.084	1.1724	0.5860	0.045
C3c	-0.8597	0.7267	0.237	-0.9394	0.6996	0.179
C3d	0.0837	0.6364	0.895			
	McFadden R2 = -0.149 df=12			McFadden R2 = 0.0217 df=4		

Table C.45: D1b_rec ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1b_rec	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.7951	1.9471	0.683	-1.9023	1.0132	0.060
C1a	-0.8538	1.4881	0.566			
C1b	2.1134	0.9817	0.031	1.4198	0.7841	0.070
C1c	-1.1970	1.1511	0.298			
C2a	0.0111	0.8551	0.990			
C2b	-0.0034	0.8254	0.997			
C2c	2.4533	0.7541	0.001	2.0740	0.6103	<0.001
C2d	1.4757	1.0590	0.163	1.4635	0.8321	0.079
C3a	-0.5778	0.7618	0.448			
C3b	0.2264	1.0685	0.832			
C3c	0.6258	0.9172	0.495			
C3d	-0.5011	1.0178	0.622			
	McFadden R2 = -0.1492 df=12			McFadden R2 = 0.0217 df=4		

Table C.46: D1c_happy ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1c_happy	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-2.6858	1.5100	0.075	-1.3716	0.8010	0.087
C1a	1.8373	0.7857	0.019	2.0145	0.6616	0.002
C1b	-1.3772	1.1622	0.236			
C1c	1.2124	0.9443	0.199			
C2a	1.5749	0.7043	0.025	1.8525	0.5610	<0.001
C2b	0.4136	0.7452	0.579			
C2c	0.5708	0.8064	0.479			
C2d	0.1352	0.9672	0.889			
C3a	-0.9897	0.7030	0.159			
C3b	0.7175	0.8023	0.371			
C3c	1.0357	0.7242	0.153			
C3d	0.2195	0.7543	0.771			
	McFadden R2 = 0.0414 df = 12			McFadden R2 = 0.1497 df=3		

Table C.47: D1e_rwds ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1e_rwds	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	0.7243	1.7966	0.687	0.3738	0.7817	0.633
C1a	-0.1035	1.2342	0.933			
C1b	-0.0790	1.1500	0.945			
C1c	0.2664	1.0096	0.792			
C2a	0.8854	0.8079	0.273			
C2b	-1. 4221	1.1752	0.226			
C2c	0. 9431	0.8592	0.272	1.0936	0.6340	0.085
C2d	0.0756	1.1101	0.946			
C3a	-0.0445	0.6593	0.946			
C3b	0.8236	0.7501	0.272	1.1635	0.6366	0.068
C3c	0.0648	0.8315	0.938			
C3d	0.5042	0.7176	0.482			
	McFadden R2 = -0.1034 df=12			McFadden R2 = 0.0119 df=3		

Table C.48: D1f_pre ~ individual C

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1f_pre	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	16.8727	1679.12	0.992	1.9131	1.6860	0.2565
C1a	-15.580	1679.12	0.993			
C1b	1.3587	1.8953	0.473			
C1c	-2.8261	2.1554	0.190	-1.7923	1.3220	0.1750
C2a	0.6408	0.9971	0.520			
C2b	-1.4965	1.2496	0.231	-1.7012	1.2066	0.1586
C2c	2.3387	0.8792	0.008	2.7273	0.8088	<0.001
C2d	0.9489	1.4217	0.504			
C3a	0.0592	0.7723	0.939			
C3b	2.1682	0.8009	0.007	1.9294	0.6723	0.004
C3c	-0.3439	0.9950	0.730			
C3d	-1.0749	1.2129	0.376			
	McFadden R2 = -0.1851 df=12			McFadden R2 = 0.0985 df=5		

Table C.49: D1b_rec ~ individual B1

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1b_rec	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-5.1014	2.2069	0.021	-2.0679	0.8542	0.015
B1a	0.1156	0.7070	0.870			
B1b	-0.3609	0.6755	0.593			
B1c	0.7212	0.6601	0.275			
B1d	-1.0172	0.6520	0.119			
B1e	-0.0945	0.5294	0.858			
B1f	-1.0234	0.5780	0.077			
B1g	0.5117	0.6101	0.402			
B1h	0.9489	0.6316	0.133	1.8424	0.6673	0.006
B1i	0.7605	0.5966	0.202			
B1j	-0.0579	0.5638	0.918			
B1k	0.7658	0.5617	0.172	3.4362	0.7349	<0.001
B1l	0.5502	0.5685	0.333			
B1m	0.0122	0.6981	0.986			
B1mm	-0.2298	0.5248	0.662			
B1n	0.9585	0.8685	0.270			
B1o	-0.3793	0.80932	0.639			
B1p	-0.1388	0.8229	0.866			
B1q	-0.7767	1.0129	0.443			
B1r	1.1386	0.5094	0.025			
B1s	-0.1934	0.6477	0.765			
B1t	0.3854	0.6595	0.559			
	McFadden R2 = 0.0127 df=22			McFadden R2 = 0.2177 df= 3		

Table C.50:D1c_happy ~ individual B1

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1c_happy	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-0.7660	2.1729	0.724	-.03719	0.7020	0.958
B1a	0.7207	0.6260	0.250			
B1b	-0.5435	0.5967	0.362			
B1c	-1.0368	0.5935	0.081			
B1d	0.4707	0.5826	0.419			
B1e	1.1867	0.4574	0.009	1.80626	0.57574	0.00171
B1f	0.9691	0.4671	0.038	0.93803	0.56046	0.09419
B1g	-0.8321	0.5125	0.104			
B1h	0.9292	0.5565	0.095			
B1i	0.2399	0.5033	0.633			
B1j	0.7669	0.4778	0.109	0.99413	0.58012	0.08659
B1k	-0.5012	0.5744	0.383			
B1l	-0.4174	0.4830	0.387			
B1m	-0.3509	0.5623	0.533			
B1mm	0.2869	0.4575	0.531			
B1n	-0.2299	0.7906	0.771			
B1o	-0.3769	0.8200	0.646	-1.4785	0.78030	0.05811
B1p	1.0723	0.7267	0.140			
B1q	-1.8481	0.8321	0.026			
B1r	-0.4779	0.4359	0.272			
B1s	0.2334	0.5472	0.670			
B1t	1.0363	0.5896	0.078	0.72207	0.56197	0.19883
	McFadden R2 = 0.0639 df=22			McFadden R2 = 0.146 df=11		

Table C.51: D1e_rwds ~ individual B1

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1e_rwds	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-6.6873	2.7084	0.014	-1.1156	0.8110	0.169
B1a	-0.3293	0.7467	0.659			
B1b	-0.8291	0.7530	0.271			
B1c	1.1203	0.6128	0.068	1.2280	0.6500	0.059
B1d	0.1437	0.6424	0.823			
B1e	-0.1303	0.5554	0.815			
B1f	0.2241	0.5340	0.675			
B1g	0.1045	0.5972	0.861			
B1h	0.8370	0.6636	0.207	0.6997	0.6831	0.306
B1i	0.8295	0.5824	0.154	1.1655	0.6587	0.077
B1j	0.4335	0.5626	0.441			
B1k	0.6983	0.5745	0.224			
B1l	0.5998	0.5688	0.292			
B1m	-0.8855	0.7315	0.226			
B1mm	0.1942	0.5358	0.717			
B1n	-0.7037	0.7857	0.370			
B1o	0.3629	0.7449	0.626			
B1p	1.0696	0.8073	0.185	1.0512	0.6546	0.108
B1q	-0.2651	0.9132	0.772			
B1r	-1.0097	0.5852	0.085			
B1s	0.5566	0.6656	0.403			
B1t	0.1682	0.7616	0.825			
	McFadden R2 = 0.0365 df=22			McFadden R2 = 0.0654 df= 5		

Table C.52: D1f_pre ~ individual B1

Dependent Variable	Before Stepwise Selection			After Stepwise Selection		
d1f_pre	Estimate	Standard Error	P-value	Estimate	Standard Error	P-value
Intercept	-11.262	3.9188	0.004	-4.2981	1.5762	0.006
B1a	0.6160	1.0020	0.539			
B1b	-0.7724	0.8861	0.383	1.1076	0.9718	0.254
B1c	-0.2997	1.0156	0.768			
B1d	-0.4145	1.2300	0.736			
B1e	0.2307	0.7859	0.769			
B1f	-0.6687	0.8443	0.428			
B1g	2.4461	1.0816	0.024	1.6522	1.1024	0.134
B1h	-0.1177	0.8623	0.891			
B1i	0.5537	0.7744	0.475			
B1j	-1.2865	0.7371	0.081			
B1k	0.8052	0.7223	0.265	2.4484	0.8108	0.003
B1l	0.7750	0.7737	0.3165			
B1m	2.1978	1.0491	0.036	1.5189	0.660	0.021
B1mm	-1.4690	0.7931	0.064			
B1n	1.5623	1.5224	0.305			
B1o	-1.3838	1.3534	0.307			
B1p	-0.5148	1.1714	0.660			
B1q	1.9612	1.2273	0.110	1.7581	0.7003	0.012
B1r	0.9306	0.7610	0.221			
B1s	-0.2450	0.8175	0.764			
B1t	0.0415	0.9459	0.965			
	McFadden R2 = 0.1657 df=12			McFadden R2 = 0.2248 df= 6		