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# The Effect of Behavioral Traits and Background on Engineering Students' Decision-Making Process compared to Business Students

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**The Effect of Behavioral Traits and Background on Engineering Students'  
Decision-Making Process compared to Business Students**

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**5/1/2019**

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## Introduction

What career to pursue is a choice that all people have to make. Understanding the reasons people choose careers can come from a multitude of different areas. Among these are behavioral factors and influential people in an individual's life. By better understanding exactly what factors influence these decisions, marketing for programs could be done more efficiently. Specifically sales programs could be helped by understanding this decision making process. By understanding how to recruit people from other areas, sales programs could be diversified from the typical students that enroll. Currently, recruiting this way is not a simple task, as not a lot of information is known on the topic.

“The research indicates that in general college students tend to have a negative view of sales as a career option.” (Inks&Avila,2018 p.131) This is one of the primary hurdles for spurring interest in sales in students. When the generally accepted view of a group is negative, recruiting members of that group is difficult. Based on the focus groups, the top of mind thoughts of sales professionals is that they are annoying and work hard at their positions. This makes students weary, because they want to make sure that whatever they are studying will be worthwhile. According to the Bureau of Labor Statistics the median annual wage of sales engineers in May 2018 was \$101,420 and the projected growth between 2016 and 2026 is 7 percent. (2018). Even after hearing these statistics, students are still hesitant to overcome their prejudice toward salespeople. Trying to narrow down the factors and analyze them is something that could be influential for any university department trying to grow their Sales major numbers. In the case of this study, the focus is on current engineering majors and the factors that influence whether or not they choose to pursue a sales credential. The insights gained through this study can be implemented within the University to increase participation in new programs. The

conceptual foundation of this study is that certain factors, such as extroversion and self-efficacy, make students more inclined to add credentials to their existing major. Another major focus of the study is the method of passing information about programs to students not in those programs. How students are educated about university programs can be very beneficial or detrimental to the success of the message being discussed.

## Theory & hypothesis development

Sales certificates are an underutilized asset available for students. If someone has a role model that has worked in sales they would understand the realities about sales people as opposed to the stereotypes that most people are familiar with. Most students between 18-24 have not had many interactions with sales professionals. (Bahhouth,Karsaklian,Spillan 2014) Due to this lack of exposure, salespeople often have stigmas associated with their profession and are not as highly esteemed as other professionals by a younger audience. If, however, the students have been introduced to salespeople as role models they would have a better understanding of these professionals.

H1: Students with a close role model working in sales are more open to courses of action such as adding a sales credential to their degree.

Engineers tend to be viewed as more introverted individuals. “The present findings as well as those of previous investigators in this area suggest that engineers, as compared with other individuals, invest or express relatively more positive affect in relation to objects and processes and less in relation to people.” (Izard 334)

H2a: Introverted engineers are less likely to enroll in sales courses compared to extroverted engineers

Between different disciplines of the business world, characteristics of students who major in those disciplines change as well. Students who are more quantitative lean toward majors such as finance and accounting, while students that view themselves to have more soft skills and less quantitative ability tend to lean toward sales. (Allen, Kumar, Tarasi 2014). While these quantitative students are confident and successful in their fields, they may view themselves as underqualified to perform “soft” tasks such as sales.

H2b: Students in non-sales business fields have a lower likelihood to pick up sales credentials due to perceived inability.

Since sales is a very social profession an assumption would be that those who take a sales credential will be more extroverted. This is due to the type of work involved with sales activities. If someone is not social and open to meeting and interacting with new people, they will likely not do well in a sales position.

H3: Students with sales certificates will score higher in extroversion than those in any other fields.

High performance and self-efficacy are both very important to have in sales positions. Believing in oneself is important in these positions and will cause people to want to do anything they can to get an edge. This would include adding credentials to boost their performance in their field.

H4: Students with higher self-efficacy will be more likely to add a sales credential.

Competitiveness drives sales professionals to be the best in their field. Research has shown an aversion to competitive options by women as opposed to men. (Buser, Niederle, Oosterbeek 2014) Given this greater likelihood to be competitive, it would be assumed that men would be more likely to participate in a field such as sales, and therefore be more likely to add a certificate.

H5: Male students will be more likely to add a sales credential than female students.

Expecting to be in blended positions would drive students to want proper training to ensure that they will be properly prepared for their future position. For engineers, they are not given this training to make sure that they will be prepared once they make it into the work force.

Engineering students who expect to work in a blended (engineering & sales) role after graduation are more likely to be interested in a sales certificate.

H6: Students who expect to be in blended positions will be more likely to add a sales credential.

Based on previous research, having a role model such as a family member in math or science has a significant effect on one's learning experiences and their self-efficacy. This goes on to show a direct relationship with educational interests. (Ferry, Fouad, Smith 2000) By taking this into consideration, students will likely be influenced by their parents and role models as far as their choice of major and other credentials.

H7: Students with sales role models will be more likely to add a sales credential.

## Methods

Two sources of primary data were used for this study: qualitative focus groups and a quantitative survey instrument.

### Focus groups

Focus group questions were based on secondary research. This secondary data ranged from sales journals to behavioral analysis charts. The opening questions were: “To this point, what has your exposure to sales been like”, “What are your current views of sales professionals?”, and “What thoughts come to mind when discussing sales professionals?” The questions were asked based on the work by Bahhouth, Karsaklian, and Spillan (2014). These questions were asked to get a baseline understanding of the general perception of sales people and what subjects’ experiences have been to view salespeople in that way. In asking “Are there any traits you believe you have that make you better suited for engineering than sales/vice versa?” and “What traits do you think make people better suited for these positions?” we attempted to confirm the work of Izard (1960) in regards to the introversion of engineers versus sales professionals. Once finished with the initial secondary research, the focus groups were run and recorded for further observation. The focus groups consisted of engineers from varying stages in their academic career and with different levels of knowledge about the topic of discussion. Once finished with the focus groups, the transcripts were reviewed to determine patterns to be used for questions in the surveys.

Before collecting any information for this project, IRB approval was received to ensure that the correct steps were taken to maintain the privacy of all participants, see Appendix A.

### Survey instrument

The survey questions were put together and sent out to business majors and engineering majors throughout the University of Akron. In total the survey was sent out to 4,042 students at

the university, 2405 of which were engineers and 1637 were business majors. Of these students, 451 started the survey and 19 opted out before answering questions. After cleaning the data set there were a total of 392 completed surveys. The responses were submitted anonymously and put into data files to be reviewed by the author. Statistical analyses were then run to determine patterns and answers that provide insights for the future of marketing programs to students.

### Sample

Our sample was drawn from the University of Akron College of Business and College of Engineering. In total, there were 192 females and 171 males with 20 students that preferred not to respond. Of those students, 179 were business majors and 204 were engineering majors. Based on their year in school, there were 62 freshman, 102 sophomores, 137 Juniors, 42 seniors, and 7 students in their fifth year and up. (Table 2)

## Results

### Insights from focus group

There were several unique insights gained from the focus groups, which aligned to a point with findings from both Inks and Avila and Bahhouth, Karsaklian, and Spillan (2014). In discussing current views of sales professionals, the overall view was negative. The groups steered away from professional processes and criteria and focused on the poor interactions they have previously had. As the discussion progressed into other areas, such as traits that make for a good sales professional, answers became more positive. From the discussion it became evident that there is an overall lack of interaction with sales professionals. However, the participants seemed to understand the basis of the positive qualities necessary to be an effective professional.

Another very evident pattern that presented itself was lack of information about the options available. When questioned about specifics regarding sales credentials available at the university, there was little known by a majority of the participants. However, once informed on the length of time necessary for programs and the benefits gained, there was a lot of interest. Overall the groups agreed that the best time to be contacted would be early on in their academic career, so they would have time to plan it out. Multiple participants seemed to have a level of unrest about never having heard about the options and feeling that it was too late for them to add a credential on.

The insights gained from the focus groups were used in conjunction with the research to formulate the questions for the survey. One prevalent example of this includes the questions of role models in students' lives and current views on sales professionals. The use of these questions was based on the findings in the secondary research and focus group conclusions.

### Insight from survey

The survey brought confirmation of various hypotheses to light, as well as new insights that had not been previously discussed. One prevalent comparison is between type of students and perception of salespeople. There is a significant difference between engineers and engineers with sales credentials, and between sales majors and non-sales business majors.

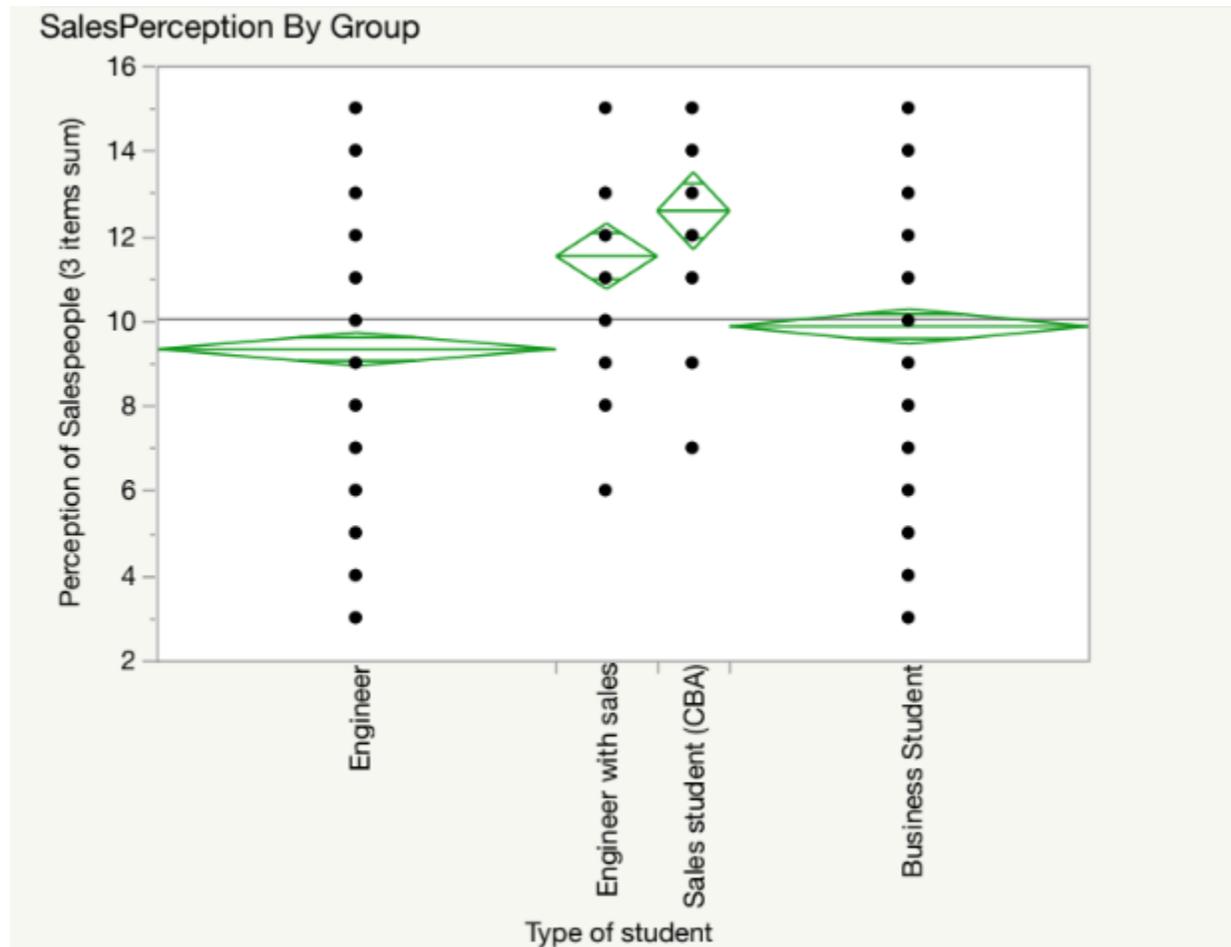


Figure A – Difference in perception of salespeople by group

Apart from perceptions, personality traits also showed major trends based upon the information gathered. Sales students and engineers with sales both showed significantly higher scores in the extroversion trait than non-sales business majors and engineers. While discussing the extroversion trait, it is important to note that while having a role model in engineering had no

significant effect on extroversion ( $p=.432$ ), the effect of a sales role model did ( $p=.000$ ). Sales students also showed a significant difference between all three others in the category of agreeableness, while engineers with sales and non-sales business majors did not have significant difference between each other.

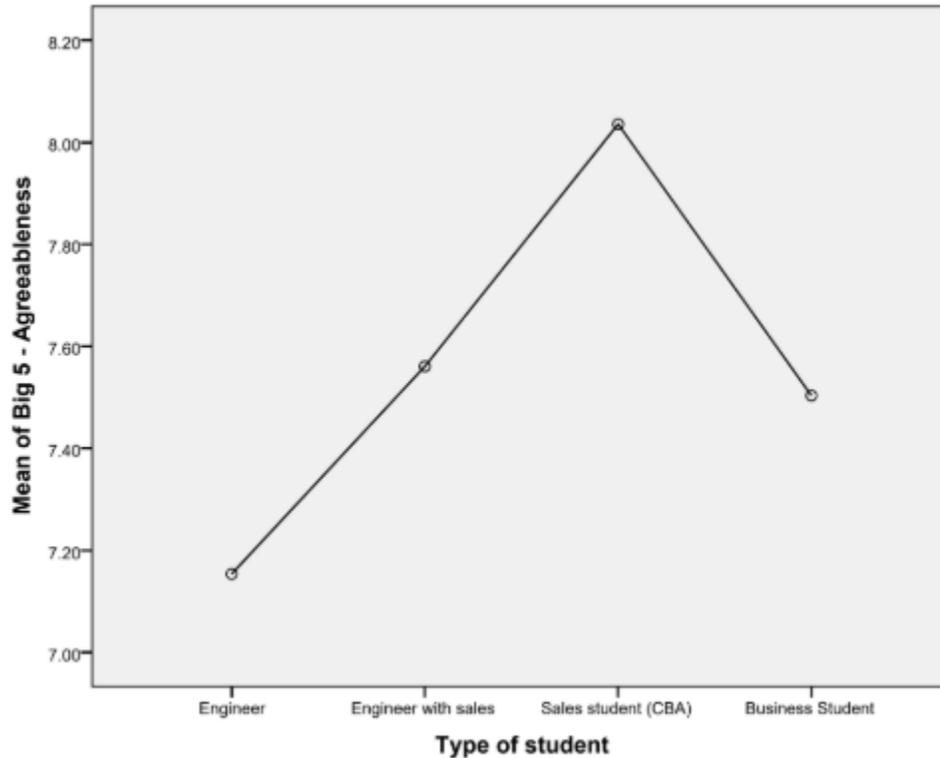


Figure B – Difference in Agreeableness by group

Another insight that was gained based on the focus group was in regards to taking on a credential as a GPA boost. Although 132 students responded very positively to picking up a credential to boost their GPA, that is not reflected in the GPA data collected. The data shows significantly lower mean GPA for engineering students with sales in comparison to regular engineering students. It does not, however, show any significant difference between engineering

students with sales and sales students or non-sales business students.

Means for Oneway Anova					
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Engineer	150	3.48541	0.03516	3.4162	3.5546
Engineer with sales	38	3.32095	0.06986	3.1835	3.4584
Sales student (CBA)	28	3.26279	0.08139	3.1027	3.4229
Business Student	131	3.36327	0.03763	3.2893	3.4373

Std Error uses a pooled estimate of error variance

Figure C – Difference in average GPA by group

Another relevant finding from the survey is the effect of self-efficacy on likelihood to undertake a sales credential. While it had a significant effect, it was a negative correlation. With a  $p = .002$  and correlation coefficient of  $-.158$  the significance of the effect is quite prominent. Competitiveness, on the contrary, had a largely positive significance on likelihood of adding a credential. Along with this was a significant effect by expected wage on likelihood to add a credential.

		It turns out you can complete a Professional Selling Certificate in a minimum of 12 credit hours. Given that information, would you be interested in adding such a certificate to your major?	Competitiveness (5 item sum)	Self Efficacy (3 item sum)	What do you realistically expect to earn in your first position directly after graduating (total compensation, i.e. salary plus everything else)?
It turns out you can complete a Professional Selling Certificate in a minimum of 12 credit hours. Given that information, would you be interested in adding such a certificate to your major?	Pearson Correlation	1	.269**	-.158**	.145**
	Sig. (2-tailed)		.000	.002	.006
	N	381	367	366	362

Figure D – Correlation between interest in taking a sales certificate and competitiveness, self-efficacy, and salary expectation

## Discussion of results

H1 suggested having a sales related role model would increase likelihood of taking on a sales credential. Based on our ANOVA that was proven to be correct. There is a significant correlation between sales role models and perception based on this. The results gathered about type of students and their views of sales people show that those people with more positive views of salespeople are more likely to have a sales credential. While it could be argued that those students with positive views and sales credentials only have those positive views because of what they have been taught further establishes the research by Bahhouth, Karsaklian, Spillan (2014). If students did not have a positive of salespeople before they began learning and interacting with them it would drive home the finding that negative associations with salespeople are due to that lack of interaction. This is also directly aligned with H7 which stated that students with sales role models will be more likely to add a sales credential.

H3 suggested that students with sales credentials would score higher in the extroversion trait. Based on correlation tables, this is correct, as students with any sales had a higher mean value in extroversion. This incidentally also confirmed H2a, which said that more introverted students would be less likely to add a sales credential.

H2b which said students in non-sales business fields have a lower likelihood to pick up sales credentials due to perceived ability, was disproven based on the findings of self-efficacy. Perceiving oneself as having higher self-efficacy showed a negative correlation to likelihood of adding a credential. This means that perceived ability for these students does not rule out their desire to add a credential.

H4 stated that male students would be more likely to add a sales credential than female students. When discussing gender and competitiveness, the data also lines up with our hypothesis and the previous research. In the work by Buser, Niederle, Oosterbeek (2014), they showed that

females tended to stray away from more competitive environments. The data lines up with this as there is a  $p=.000$  and a correlation coefficient of  $-.216$ . This shows that the females in surveyed were also less likely to pursue a competitive path as opposed to one with less competition, which confirmed our hypothesis that men would be more likely to pick up a sales certificate.

H5 suggested that students with higher self-efficacy would be more likely to add a credential. The thought was that with higher self- efficacy students would be driven to improve in any way to do their best in their field. With this in mind, it was assumed that those with higher self-efficacy would pursue ways to improve their skills and earn what they see their value as. According to the correlation table (Table 4), however, this is not the case. Self efficacy had a significantly negative effect on likelihood of adding a credential. .

While these conclusions were more in line with the expected results, one area that was different was in the GPA of students. While the expected highest group was engineers and that stayed true, remaining significantly higher than all of the other groups, engineers with sales did not have any significant difference between either of the business majors. Considering our hypothesis that students would be likely to use this as a GPA boost is somewhat defunct, as the results do not show a higher GPA for these students. There is a significant of

Another area that had different results than expected was in measuring self-efficacy and its effect on decision to add a credential on. Our hypothesis was that the higher the self-efficacy, the higher the likelihood off adding on, since people with high self-efficacy have a greater view of what they can succeed. With this in mind it was assumed that those with higher self-efficacy would pursue ways to show how confident they are in their ability and earn what they are worth. According to the data, however, this is not the case. Self-efficacy had a significantly negative effect on likelihood of adding a credential.

Though self-efficacy did not perform as expected, competitiveness did. Having a significant positive effect on likelihood to add a credential, it performed exactly as expected. This helped to confirm the character traits that sales professions align with and show that competitive people do tend to work in sales-oriented positions.

## Conclusion

There are many avenues that could be chosen to try to market for programs. Based on responses from surveys and focus groups, the best route to take is to introduce the idea early on in students' academic careers. Based on the total responses, only 16% of students think it would be best to start an extra credential in the last two years in school. That leaves 84% of the responses believing that the first three years would be best. It is unlikely, however, that a student who has never heard of a program will hear about it once in their third year and decide to undertake it. Making sure that students are aware of these opportunities with enough time to make an informed decision is a key to raising participation.

While timing is important, so is the method of delivery. 89% of the responses came back saying that presentations in their intro level classes would be an effective or very effective way to reach them with information, with 44% very effective, making it the highest scoring in this category. This is followed by Advisors with 78% effective or very effective. Emails, which traditional are used by the University to convey information have 72% effective or very effective, however only 24% of that comes from very effective. While this is still a better mode of information transportation than tabling or word of mouth, the respondents show that it is not the best way to be reached.

	Emails	Flyers	Presentations	Tabling	Word of Mouth	Advisors
Very ineffective	31	99	16	89	54	39
Ineffective	73	133	25	131	78	43
Effective	176	119	166	123	166	160
Very effective	90	19	163	27	72	128

Figure F – Perceived effectiveness of different means of communication about the sales certificate

Moving forward, the recommendation based on this data is to start with a presenter in intro level courses and follow that up with a discussion when the student meets with their advisor. Based on the correlation between predicted salary and desire to add a credential, focusing on the market growth and salary of engineers with sales would be the best approach to take. Focusing on these areas will allow for greater outcomes and the possibility for further research based on the results.

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## Tables

Table 1 – Breakdown of majors and response rates

	Population (N)	Sample (n)	Response rate
Engineering Students	2405	204	8.5%
- Engineers with sales certificate	?	41	
Business students	1637	179	9.8%
- Sales majors	95	29	30.5%
Non business & non-engineers	?	9	
<b>Total</b>	<b>4042</b>	<b>392</b>	<b>9.5%</b>

Notes: The number of engineers taking sales certificates is unknown. Response rate for sales majors and presumably the response rate for engineers with sales certificates is higher than the response rate in the population. This is likely because the main advisor of the project encouraged participation of sales students. Total response rate is calculated without including the responses from non-business & non-engineering students.

Table 2 – Demographics of respondents

<b>Gender</b>	
Female	192
Male	171
<b>Year</b>	
Freshman	63
Sophomore	102
Junior	137
Senior	42
Year 5+	7
<b>Majors Business</b>	
Accounting	42
Finance	27
Economics	7
Marketing	51
Sales	17
Management	16
Supply Chain	19
<b>Majors Engineering</b>	
Aerospace	6
Biomedical	39
Chemical	29
Civil	34
Computer	13
Corrosion	6
Electrical	20
Mechanical	57

Table 3 – One-way ANOVA

		Descriptives								
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
						Lower Bound	Upper Bound			
What benefits do you think sales classes could offer you? - Break from coursework	Engineer	156	1.87	.751	.060	1.75	1.99	1	3	
	Engineer with sales	40	2.63	.586	.093	2.44	2.81	1	3	
	Sales student (CBA)	28	2.18	.772	.146	1.88	2.48	1	3	
	Business Student	145	1.84	.723	.060	1.72	1.96	1	3	
	Total	369	1.96	.764	.040	1.89	2.04	1	3	
What benefits do you think sales classes could offer you? - Meet new people	Engineer	156	2.21	.719	.058	2.10	2.33	1	3	
	Engineer with sales	40	2.65	.533	.084	2.48	2.82	1	3	
	Sales student (CBA)	28	2.79	.418	.079	2.62	2.95	2	3	
	Business Student	145	2.28	.702	.058	2.16	2.39	1	3	
	Total	369	2.33	.698	.036	2.26	2.40	1	3	
What benefits do you think sales classes could offer you? - Differentiation in job market	Engineer	156	2.27	.646	.052	2.17	2.37	1	3	
	Engineer with sales	40	2.85	.362	.057	2.73	2.97	2	3	
	Sales student (CBA)	28	2.86	.448	.085	2.68	3.03	1	3	
	Business Student	145	2.39	.637	.053	2.28	2.49	1	3	
	Total	369	2.42	.639	.033	2.36	2.49	1	3	
What benefits do you think sales classes could offer you? - Pay difference in career	Engineer	156	2.09	.713	.057	1.98	2.20	1	3	
	Engineer with sales	40	2.58	.712	.113	2.35	2.80	1	3	
	Sales student (CBA)	28	2.75	.585	.111	2.52	2.98	1	3	
	Business Student	145	2.18	.742	.062	2.06	2.30	1	3	
	Total	369	2.23	.742	.039	2.15	2.30	1	3	
What benefits do you think sales classes could offer you? - GPA boost	Engineer	156	2.14	.757	.061	2.02	2.26	1	3	
	Engineer with sales	40	2.60	.591	.093	2.41	2.79	1	3	
	Sales student (CBA)	28	2.25	.701	.132	1.98	2.52	1	3	
	Business Student	145	2.03	.681	.057	1.92	2.15	1	3	
	Total	369	2.16	.724	.038	2.08	2.23	1	3	
What benefits do you think sales classes could offer you? - Improving soft skills	Engineer	156	2.49	.606	.049	2.39	2.58	1	3	
	Engineer with sales	40	2.75	.439	.069	2.61	2.89	2	3	
	Sales student (CBA)	28	2.79	.418	.079	2.62	2.95	2	3	
	Business Student	145	2.33	.624	.052	2.23	2.43	1	3	
	Total	369	2.48	.604	.031	2.42	2.54	1	3	

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Email	Engineer	154	2.96	.862	.069	2.82	3.10	1	4
	Engineer with sales	39	2.82	.914	.146	2.52	3.12	1	4
	Sales student (CBA)	28	2.68	.819	.155	2.36	3.00	1	4
	Business Student	142	2.84	.896	.075	2.69	2.99	1	4
	Total	363	2.88	.879	.046	2.79	2.97	1	4
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Flyers	Engineer	154	2.08	.870	.070	1.95	2.22	1	4
	Engineer with sales	39	2.28	.857	.137	2.00	2.56	1	4
	Sales student (CBA)	28	2.21	.995	.188	1.83	2.60	1	4
	Business Student	142	2.17	.875	.073	2.02	2.31	1	4
	Total	363	2.15	.879	.046	2.06	2.24	1	4
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Presentations in intro classes	Engineer	154	3.24	.793	.064	3.11	3.37	1	4
	Engineer with sales	39	3.49	.823	.132	3.22	3.75	1	4
	Sales student (CBA)	28	3.50	.577	.109	3.28	3.72	2	4
	Business Student	142	3.23	.775	.065	3.10	3.35	1	4
	Total	363	3.28	.778	.041	3.20	3.36	1	4
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Tabling	Engineer	154	2.16	.889	.072	2.02	2.30	1	4
	Engineer with sales	39	2.36	.932	.149	2.06	2.66	1	4
	Sales student (CBA)	28	2.54	.838	.158	2.21	2.86	1	4
	Business Student	142	2.23	.904	.076	2.08	2.38	1	4
	Total	363	2.24	.898	.047	2.15	2.33	1	4
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Word of mouth	Engineer	154	2.57	1.034	.083	2.41	2.74	1	4
	Engineer with sales	39	3.13	.732	.117	2.89	3.37	1	4
	Sales student (CBA)	28	2.89	.916	.173	2.54	3.25	1	4
	Business Student	142	2.67	.865	.073	2.53	2.81	1	4
	Total	363	2.69	.945	.050	2.60	2.79	1	4
What would be the most efficient way for you to learn about a sales certificate program at The University of Akron? - Academic advisors	Engineer	154	2.73	1.036	.083	2.57	2.90	1	4
	Engineer with sales	39	3.15	.933	.149	2.85	3.46	1	4
	Sales student (CBA)	28	3.25	.887	.168	2.91	3.59	1	4
	Business Student	142	3.24	.762	.064	3.11	3.37	1	4
	Total	363	3.02	.943	.049	2.92	3.11	1	4

Table 4 – Correlation Table

	items	n	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Interest in Sales Certificate	1	381	2.72	1.27	1															
2 Competitiveness	5	367	18.31	3.82	0.27 **	1														
3 Self-efficacy	3	366	13.05	2.01	-0.16 **	0.18 **	1													
4 Big 5 - Extraversion	2	375	6.30	2.05	0.16 **	0.28 **	0.14 **	1												
5 Big 5 - Agreeableness	2	375	7.41	1.53	0.02	-0.08	-0.01	0.23 **	1											
6 Big 5 - Conscientiousness	2	375	8.02	1.54	-0.06	0.08	0.30 **	0.19 **	0.23 **	1										
7 Big 5 - Neuroticism	2	375	5.73	1.99	-0.08	-0.21 **	-0.21 **	-0.28 **	-0.08	-0.25 **	1									
8 Big 5 - Openness	2	375	6.96	1.78	-0.04	-0.03	0.09	0.08	0.02	0.10	0.04	1								
9 Perception of Salespeople	3	367	10.07	2.62	0.29 **	0.21 **	0.08	0.26 **	0.15 **	0.07	-0.15 **	-0.01	1							
10 Salary Expectation	1	362	3.43	1.19	0.15 **	0.16 **	0.16 **	0.04	-0.08	0.13 *	-0.23 **	-0.07	0.01	1						
11 Role Model - Sales	1	370	0.38	0.49	0.11 *	0.23 **	0.03	0.24 **	0.05	0.15 **	-0.16 **	0.02	0.24 **	0.01	1					
12 Role Model - Engineering	1	370	0.52	0.50	0.01	0.09	0.10 *	-0.04	-0.01	0.09	-0.02	0.04	-0.07	0.18 **	0.16 **	1				
13 Gender (0 = male, 1 = female)	1	365	0.47	0.50	-0.17 **	-0.22 **	0.07	0.04	0.10 *	0.12 *	0.31 **	0.08	0.02	-0.25 **	-0.04	-0.04	1			
14 Academic year	1	363	3.10	1.01	-0.11 *	-0.01	0.07	0.12 *	0.03	0.10	-0.18 **	0.04	0.02	0.01	0.10	0.00	-0.05	1		
15 College GPA	1	354	3.40	0.44	-0.23 **	-0.08	0.37 **	-0.02	-0.02	0.26 **	0.05	-0.06	-0.23 **	0.07	-0.04	0.06	0.18 **	-0.08	1	
16 ACT score	1	310	26.81	4.04	-0.22 **	0.00	0.32 **	-0.10	-0.14 *	0.14 *	-0.12 *	0.10	-0.22 **	0.23 **	-0.04	0.20 **	-0.06	0.09	0.41 **	1

\*\* =  $p < 0.01$  ; \* =  $p < 0.05$

# Appendices

## Appendix A – IRB Approval



Office of Research Administration  
Akron, OH 44325-2102

### NOTICE OF APPROVAL

Date: 3/14/19  
To: Joe Scott  
Department of Marketing  
From: Katie Watkins Assistant VP of ORA and IRB Administrator  
IRB Number: 20190302  
Title:

Approval Date: 3/14/19

Thank you for submitting your Request for Exemption to the IRB for review. Your protocol represents minimal risk to subjects and qualifies for exemption from the federal regulations under the category below:

- Exemption 1 – Research conducted in established or commonly accepted educational settings, involving normal educational practices.
- Exemption 2 – Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.
- Exemption 3 - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.
- Exemption 4 – Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.
- Exemption 5 – Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.
- Exemption 6 – Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact the IRB to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. This office will hold your exemption application for a period of three years from the approval date. If you wish to continue this protocol beyond this period, you will need to submit another Exemption Request. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

Approved consent form/s enclosed

## Appendix B – Focus Group Script

### Introduction:

Hello, my name is Joe Scott and I am a senior here at the University of Akron. I have asked that you all come here to participate in this focus group as a part of my final honors project. In this project I am looking to identify the factors that affect decision making as it applies to engineers' decisions to take on a sales credential on top of their normal major. Throughout this discussion I will be asking you questions about your views and knowledge on the subject of sales. I ask that you give your honest opinion and allow all participants to voice their opinions equally. I would like to start by having you all introduce yourselves, and we will continue from there. Thank you all again for participating in this research project.

### Focus Group Questions

- 1-To this point, what has your exposure to sales been like
- 2-What are your current views of sales professionals? What thoughts come to mind when discussing sales professionals?
- 3-What have you heard from others about sales courses at Akron?
- 4-How much have you heard about sales for engineers?
- 5-What do you think the time commitment is like for a sales certificate? Do you think this is reasonable?
- 6- What is the biggest reason you joined engineering/sales?
- 7-Are there any traits you believe you have that make you better suited for engineering than sales/vic versa? What traits do you think make people better suited for these positions?
- 8-What medium do you turn to, to hear about information from the college? Ex: email, brightspace, etc. What other ways do you get your information?
- 9- When looking for a job what do you find to be the most difficult part?
- 10- How do you believe your major is helping you to prepare for the job search, and making sure you have the right tools to succeed?
- 11-Where do you look when searching for a full time job?
- 12-What have you heard, if anything about the sales certificate for engineers at the University? Any feedback from other students?
- 13- What drawbacks in our current sales program would you address if you could?
- 14-What are the most important features of a career to you? What does your dream career look like? Ex: pay, environment, type of work, etc
- 15-At this point what factors are stopping you from picking up a sales certificate?

## Appendix C1 – Focus Group 1 Transcript

Joe: Hello, my name is Joe Scott and I am a senior here at the University of Akron. I have asked you all to come here to participate in a focus group that is a part of my final honors project. In this project I am looking to identify the factors that affect the decision-making steps that apply to engineers when they decide to take on a sales major or sales certificate or why they don't. Throughout this discussion I will be asking you questions about your views and knowledge on the subject of sales. I ask that you give your honest opinion and allow all participants to voice their opinions equally. I would like to start by having you all introduce yourselves and we will continue from there. Thank you all, again, for participating in this research project. Also like I said we are being recorded. This is only for the use of the research project, so it's not going to be like out there blasted to the public with your name and everything. Your names are just on this for the transcribing to be easier, so that we can identify who said what. Alright so if everyone wants to go around and introduce themselves.

Henry: I mean, how much of an introduction do you want

Joe: Just your name and your major.

Henry: I'm Henry...

Joe: And year, sorry.

Henry: what?

Joe: year here like freshman, sophomore.

Henry: I'm a sophomore mechanical engineering major

Taha: I'm sorry, I'm Taha. I'm a mechanical engineer and I'm in my... I'm in my sophomore year of mechanical engineering.

Joe: Okay

Josh: I'm Josh. I'm a biomedical engineer and this is my third year.

Michael: I'm Michael Hinnebusch. I'm a sophomore for corrosion engineering.

Mike: I'm Mike. I'm an electronics engineering technology sophomore.

Joe: Alright. So, to start this off, like I said this is all going to be just about your views on sales and things

of those nature(s). So, to this point, what is your expose to sales been like just in your everyday life? Not

just in the college just like sales overall your life.

Michael: Are we talking about people trying to sell stuff to us or...

Joe: Yeah

Michael: .... Or any experience of us trying to persuade someone to buy something.

Joe: Either if you've got it.

Henry: I've been approached a lot by spectrum salesmen at Walmart...

Josh: That's true.

Henry: Asking if I paid the cable bill.

Josh: Only the cable bill though.

Michael: I also get a lot of ads for really expensive cars that I clearly cannot afford. It's always fun.

Josh: I've been approached by Vector a lot to try to get me to sell their knives.

Joe: Okay. So your expose has... Do you have like a positive or a negative view on sales at this point?

Taha: It's a positive.

Josh: I'd say it's a mixed. I don't need to be approached all the time, but I get they are doing their jobs

so it's kind of like... you know.

Henry: I'm not going to go out of my way to find a salesman to sell me something.

Joe: Yeah. Okay, Cool. What are your current views of sales professionals and what thoughts come to

mind when discussing sales professionals?

Mike: They're trying their best, but it gets old.

Henry: I feel like sales is... is someplace you just end up. I don't think anybody that's in sales really wants

to be in sales.

Joe: Okay.

Henry: At least from the salesmen that I've encountered.

Josh: It's a lot of talking, so you have to be a good speaker. Not my shtick.

Michael: My ability to understand what they are saying to me, like if they have a really weird thick

accent usually determines whether I'm going to be persuaded by their products or not. Like really bad,

you know, stereotypically like can I say an Indian accent or whatever. I'm probably going to be a bit

more pulled away because... I don't know.

Joe: Okay.

Taha: Yeah I believe it's a good profession

Joe: You say what?

Taha: It's a good profession.

Joe: It's a good profession, okay. Do you have any thoughts about the professionals themselves or...?

Taha: Yeah like Michael said I agree with him.

Joe: Okay. What have you heard to this point about sales course at the University of Akron? Have you

heard anything about them?

Henry: Next to nothing.

Josh: Only what you've told me because you're a salesman.

Taha: Yeah.

Joe: Is that the consensus that no one has ever heard anything from sales?

Henry: I mean, I feel like generally engineers are kind of in like their own little bubble at the school

that's why they keep the art majors on the other side of campus.

Joe: Okay.

Michael: My buddy's cousin is a... he's a civil engineer but he is going to switch to sales.

Mike: I'm locked in Schrank south, so I don't hear anything.

Joe: Cool. What kind of time commitment do you think that there would be to get a sales certificate if

you have any idea about the sales certificate here?

Mike: 12 credit hours.

Henry: I think you're a little inside. I'm going to say like...

Joe: It's not like a major or a minor, it's just like a certificate to say that you've had some training in

sales.

Josh: So, it's definitely probably not even close to 2 years.

Mike: I just know the math certificate they offer is only 3 classes, so 12 hours.

Henry: I'd say like a year and a half maybe.

Taha: Yeah 2 years.

Josh: I'll go a year.

Michael: Probably about, yeah, a year. Maybe half a year.

Joe: Do you guys think that's reasonable? Or is that like with your engineering programs do you think

that that's a reasonable amount of time for people to try and get you to sign up for certificate or do you

think that that's too extensive?

Mike: Too extensive for me.

Henry: Yeah.

Josh: Well engineers are kind of loaded down with all that coursework.

Henry: It would definitely be an afterthought. There's a lot more that you can do then pursuing just a

straight up business or math majors instead.

Michael: It might be a fun elective to try out, but like maybe like a summer course or something.

Joe: Okay. So, what is the biggest reason that you all joined your engineering fields? Like was there

anything in your life that made you think I really want to be a Biomedical Engineer?

Josh: I really like biology which is why I am technically a biomedical engineer possibly going into medical

school afterwards. I also like math, so combining those two things you basically get biomedical

engineering, which is what I'm good at. I have pressure from my mom she is a double major in math and

physics, so I had to do something "engineery".

Henry: I've always gravitated towards math and science just because it was easier for me than writing.

Played with a lot of Legos and watched a lot of myth busters as a kid.

Michael: I come from a family of engineers, so it was kind of just something that was shown to me or

whatever. Kind of like the family business in a sense except work for other people. In high school I

enjoyed chemistry, so I felt I'd go towards the chemical route. Then I learned about corrosion engineering during a tour that I took here so I decided to go to corrosion.

Mike: I'm competing with a doctor, I mean go big or go home.

Josh: Same 2 generations.

Joe: What made you want to go into engineering, Taha?

Taha: I really like mathematics so the course I took is engineering, but yeah.

Joe: Okay. What traits do you think make somebody better suited for engineering as opposed to sales?

And then what makes somebody better suited for sales as opposed to engineering?

Mike: Sales you communicate a lot more with people directly. Engineers just kind of make it and hand it

off to sales to sell it.

Josh: There's a lot more public skill needed in sales than engineering.

Taha: Yeah more communication skills.

Michael: They definitely also work hand in hand because sales probably figures out what the customer

wants along with, you know, trying to push the product and Engineers can help better form it towards

the sales target or target product for the sales customer.

Joe: What medium do you turn to, to hear about information from the college? Like emails, Brightspace

etc.

Josh: Usually word of mouth. Basically people just tell me what's happening and I'm like "oh that sounds

cool, I'll look into it or something like that".

Henry: Yeah posters.

Taha: Flyers

Michael: Sometimes clubs or whatever can be a nice little way to check into it or get acclimated in a

sense.

Joe: Alright. When looking for a job what do you find to be the most difficult part or like have you looked

for internships or co-ops yet?

Henry: I went to a career fair. I didn't know a whole lot of what I was doing and I don't think my resume

was really that impressive.

Joe: Gotcha.

Henry: I think like making yourself marketable is the hardest part and hooking first internship because

everybody else that I talked to was pretty much like "Once you have work experience on your resume

that makes you a lot more desirable" in terms of hire-ability.

Michael: For our career field, experience and kind of seek of education really helps form whether you

get picked or not. Sophomore just getting out of calculus and differential equations and

thermodynamics is probably not going to be as pickable as maybe someone that as already done some

co-ops and probably on more of their specialty classes.

Joe: Alright, how do you believe that your major is helping you to prepare for the job search and making

sure that you have the right tools to succeed in this?

Mike: Are classes teach all around in a sense, so we do a lot of like mechanical stuff and they teach you

how not to just stab yourself pretty much.

Henry: I mean I'd say like with engineering specific courses you learn like engineering specific skills but

all the information that you here about the industry itself and finding a job is offhand from the professors rather than a part of the curriculum.

Michael: definitely at least so far from what I have noticed with corrosion engineering they have kind of

been giving us a sample of working and stuff in like excel and doing labs, and research. So it gets kind of

bits and pieces of the industry that whatever we like we can probably better advertise ourselves in

career fairs.

Joe: Alright. If you were going to look for a full-time job would you know where to look and where

would you look?

Josh: I think the first start has to be the career fair to get a co-op and then usually one you have a co-op

and you are able to hold it down. They will usually offer you that full-time job. I think that's the best

way, at least here at the university.

Henry: There's a lot of ways just like word of mouth too. I think most people that have at least one

engineer in the family or know an engineer has a lot of connections already as far as like different 'ins' to

different companies.

Michael: Also definitely depending on where you want to go, you could probably go on your own and

look up the sites for companies you want to join. You could probably look up their career page to see if

they are hiring any co-ops or internships and start talking with them and get some advice to help you

out as well.

Joe: Alright. So what have you heard about the sales certificate for engineers? I know that I asked you

about sales in general, you haven't heard anything about the certificate?

Henry, Josh, Michael, Mike, and Taha: Nope

Joe: These ones aren't super going to apply. What drawbacks in our sales program would you address if

you could?

Mike: We don't hear about it.

Josh: A group of people don't know anything about it.

Joe: What are the most important features of a career to you and what does your ideal dream career

look like to you? Like everyday activities of the career.

Henry: I'd say something hands on that I could stand to do everyday for the rest of my life until I retire

and that also pays well in the process.

Michael: I definitely feel like I want to start off in designing some of the stuff and getting to understand

how the industry works and help them improve their industry. Then after a while, switch to more of a

business aspect and then kind of more supervisor roles or something. That's probably the way I want to

go.

Josh: I just want to help people in whatever way I can whether it's making prosthetics or helping in that

sort of realm or heading to medical school and being a doctor and helping in terms of like ER work or

orthopedic surgery or something like that.

Mike: The people I guess. You got crappy people you work with; it's going to make it a lot worse.

Henry: That's probably the smartest answer.

Taha: I agree with Mike

Joe: Alright, so your dream job looks like people. At this point what factors you see stopping you from

picking up a sales certificate that goes along with your major?

Mike: Not getting any more info after this.

Henry: Time investment would probably be... the timing factor.

Taha: Timing factor

Josh: The biggest factor is time investment. We're probably bogged down in our own fields right now.

Michael: I actually recently failed my calculus 3 class, so the course I need to take this semester I have to

wait until probably next year. So I free credit space next semester to check it out.

Joe: Well that's the end of our questions. Is there anything you guys want to know regarding sales or the

sales certificate or anything along those lines?

Henry: How much time is actually needed for a sales certificate?

Joe: Ah ha bet you thought that was something I would know but off the top of my head I cannot remember.

Taha: Is there a minor in sales?

Joe: There is we have certificates, minors, and majors. Certificates are not super time consuming, which

I can send out information to you if you would like. I'm going to gather all of your emails at the end of

this to send you the survey that this is go into making. So that will be able to give you more information.

There will be links to the pages for certificates and majors and stuff. Anything else?

Michael: Do you enjoy sales.

Joe: Love it to death

Michael: That's the important thing. If you don't like it then why are you pitching it to us.

Joe: Yeah, I love it. Like he said (Henry) it's not necessarily where most people begin. I didn't begin here,

but way better than engineering was.

Everybody but Joe: (laughs at the ridiculous comment he made)

Josh: You're funny

Joe: Alright cool, I'm going to see if he's still recording

## Appendix C2 – Focus Group 2 Transcript

**Joe:** My name is Joe Scott and I am a senior here at the University of Akron. I have asked that you all come here to participate in this focus group as a part of my final honors project. In this project, I am looking to identify the factors that affect decision-making as it applies to engineers' decisions to take on the sales credential on top of their normal major. Throughout this discussion, I will be asking you about your views and knowledge on the subject of sales. I ask that you give your honest opinion and allow all participants to voice their opinions equally. I would like to start by having you all introduce yourselves and we will continue from there. Thank you all again for participating in this research project. Also a little disclaimer, like I said we are being recorded. There is a mic right there (points up) and we got two cameras. Is everybody okay with that? I am not going to blast it out to the public, it is just used for this project.

**Matt:** I'm Matt, I have been a chemical engineer for four years, that's it.

**Linus:** Alright, I'm Linus and I'm an electrical engineer, junior.

**TK:** I'm a senior mechanical engineer technologist. Tyler Keith (TK) is the name.

**Trayce:** I'm Trayce, fourth year mechanical engineer.

**Joe:** Alright. Thank you all again for coming and we will just get right into this. So, to this point has your exposure to sales been like in your everyday lives? Good, bad, a lot of it?

**Matt:** I really hate them. When I go to Walmart and stuff, they are always talking to me and I try to ignore them. My dad also yells at them when they try to sell him vacuums. Besides that, I don't really mind them that much. So, no I don't really mind them that much.

**Linus:** They are just annoying. I don't answer my phone anymore because of sales people

**Joe:** That's valid.

**Trayce:** When I first met them before my major, I was annoyed by them. You always think about the used-car salesmen trying to push the worst deal on you. So I guess before I found out about sales in my classes, I was pretty negative towards the idea of it.

**TK:** My favorite sales experiences are the ones where I just put my stuff up there and buy and talk to them the least.

**Joe:** Gotcha. Those seem like mostly negative overall views of sales people. That kind of also covered two since you also talked about sales professionals. What have you heard from other students about sales courses at the University of Akron if you've heard anything?

**Matt:** Oh, I can answer that one. Well you told me a lot...

**Joe:** Other than myself.

**Matt:** I can't answer that one, Linus.

**Linus:** A lot of people that are in them seem to be okay with them as far as I can tell. And the ones that are like "yeah go for the sales certificate", are going for the sales certificate already. So, I don't know. Outside of people that are already taking them, I haven't heard anything.

**TK:** Can you repeat the question?

**Joe:** what have you heard from other about sales courses at Akron?

**TK:** Nothing

**Trayce:** Nothing

**Joe:** Alright, Have you (looking at Trayce) picked up the sales certificate?

**Trayce:** yeah, I started so early that I'm about to get my minor.

**Joe:** How much have you heard about sales for engineers?

**Trayce:** At Akron or in general?

**Joe:** At Akron or in general whichever you like.

**Linus:** It exists and co-ops want it.

**Matt:** I've barely heard of it.

**Trayce:** It's one of the only schools I know that has sales program for engineers.

**TK:** I know that Long Johns (4:32?) wants you to work with sales, but I don't know anything else.

**Joe:** And did you know that we have a sales certificate for engineers?

**Matt:** Now I do.

**Joe:** If you had to guess off the top of your head what do you think the time commitment for a sales certificate would be? Like credit-wise.

**Matt:** 2 years. Just off the top of my head, I'm literally just guessing.

**Linus:** 15 credits.

**TK:** A full bachelor's degree, no idea.

**Trayce:** I know the answer.

**Joe:** Do you think that would be reasonable to add to your curriculum?

**Matt:** No. On top of how many years I'm already taking.

**TK:** (to Matt) Just stay in college forever.

**Linus:** Sure

**Joe:** You think it's a whole bachelor's degree, do you think you could add it to your current degree?

**TK:** Am I wrong?

**Joe:** (to trayce) Do you think it's reasonable? Obviously, you already picked it up.

**Trayce:** Yeah, I think it's reasonable.

**Joe:** Alright, and what's the biggest reason you decided to join engineering?

**Matt:** The money. It paid the most when I searched what major paid the most beside nuclear engineering, but chemical pays a lot. So, engineering is a good option.

**Trayce:** I'm good at math and science.

**TK:** I feel that.

**Linus:** My dad was in it.

**TK:** I actually took a course in high-school, did you know that there was a course offered in our high school that for like project lead the way for engineering?

**Joe:** I did not.

**TK:** I took it and I liked it.

**Joe:** It's too late now.

**Matt:** Go back at take it.

**Trayce:** I was pretty similar actually. There was one at my high school. The reason that I got into the academy in high school was because I was good at math and science.

**Joe:** So you also had classes at your high school? (In referenc to North Ridgeville's engineering class in high school)

**Trayce:** \*nods\*

**Joe:** So you guys are just good at it and you did it a little bit and you just wanted the money?

**Collective except Linus:** Yes

**Linus:** Electron chainsaws

**Joe:** Electron chainsaws?

**Linus:** Electron chainsaws are the reason I joined electrical engineering.

**Joe:** I am going to ask you about that later. Are there any traits you believe that you have that make you better suited to engineering as opposed to sales?

**TK:** I don't know a goddamn thing about sales.

**Matt:** I can't really sell something to somebody. "Oh, can I get 50% off" (someone asks matt). (Matt says back to them) "that sounds reasonable, here you go". I cannot barter.

**Linus:** I don't like people. That doesn't help.

**TK:** I like people, I just think I would be bad at it.

**Trayce:** I am not very helpful to you. I am probably more suited to sales than engineering. I am very personable, people-oriented. I can just understand the technical side more than the average person.

**Joe:** That is okay. So, what do you think the traits are that best suit a sales person that you think that you don't have?

**Linus:** Friendly.

**Matt:** Personable.

**TK:** A nice person.

**(I cant distinguish what happens from 8:17-8:28)**

**Joe:** So, to be a good sales person you think that you have to be friendly and personable?

**TK:** From the times that I remember about sales, is when they are being negative or pushy. So, if I'm having a good time with a sales person, I'm not going to remember it because I expect that. I expect someone to be nice because that's their job

**Linus:** They have to sound like they are genuinely interested in what they are trying to sell and getting what you need.

**Trayce:** Adaptable too because they have to be able to adapt to different people. Like, what I think a lot of engineers are focused on is the way you do it and it is straight-forward. You have to be able to understand different types of people and adapt to who you are talking to.

**Joe:** What medium do you turn to hear information from the college?

**Matt and TK:** Zipmail

**Linus:** Email.

**Joe:** Is there anything than just general emails?

**Trayce:** The home page

**TK:** Flyer for things that I don't go to.

**Joe:** At least you know about them. And what do you think would be a good way to get information to you? Like you said you all look at zipmail but do you look at it to see what it is or just to clear it out of your email?

**Linus:** Yes

**Matt:** I look at the title of it.

**Trayce:** I look at the headline for engineering and then I'll read it, but if it's just like a generic title than I won't.

**Matt:** The best way, I would say is email honestly. As long as it is a good catchy title.

**Joe:** If you were looking for a job, what is the most difficult part about looking for a job?

**TK:** I think that because I am in a school of engineers, it is really hard outdo them because there is always going to be a better engineer at the school of engineering.

**Matt:** Uniqueness, you got to find a unique niche for yourself.

**Trayce:** I don't have that issue, if you guys didn't notice. Mine is more of trying to find the company that matches you like co-ops. You are usually with one co-op for so long that the co-op might offer you a job, but I'm more concerned about did I pick the right co-op and now I'm stuck there for the next however many years. The hardest thing is being content with what you end up with because it is a weird thing.

**Linus:** (at the career fair) There are 300 companies here, what do I do with that? (rhetorical question)

**Joe:** So, when you're looking for a job where would you be searching like job fair or through your co-ops?

**Linus:** Job fairs.

**Trayce:** Career fairs, linked-in, and Handshake. Its pretty good if you just type in keywords.

**TK:** I'm going to start doing linked-in. I just went to a career fair and I'm waiting for call backs on that. I'm going to apply to places online. I'm trying to find someplace close that is like the most important thing. I don't really care what my first job is going to be as long as I get experience and then I can get what I want.

**Joe:** Do you think that career fairs are an effective way because a lot of engineers that I talked to that was their main way of getting information about jobs and seeing what companies are out there? Do you think that's an effective way to actually get to talk to them or is it kind of just out there?

**TK:** It seems like a mess, but I see improvements in it lately. I feel like it is less clustered. I saw for this career fair had like little posters with the colors, so you know which ones you are looking for. Oh this tag's purple and I'm purple, I like that.

**Trayce:** I think career fairs are helpful. Especially when you apply online and they don't know you and just get a random resume. The recruiter helps with the person to person thing. I also said that I like talking to people so I get excited for the career fair, but I know a lot of engineers that dread the career fair because it is a lot of people in one area.

**Linus:** I'm better at random resumes. I made both of my jobs so far.

**TK:** There is something about being turned down in person that I don't like. Like I'll talk to a company and they seem nice. I'll talk to another company and there just like "No, we're not looking for you" and I'm like "Ok, cool, awesome."

**Linus:** (continuing on where TK left off): I'll just be over there.

**TK:** I'd rather get and email or something.

**Trayce:** See I'm the opposite, emails make me mad. Even worse is when they don't say anything. Like when you have the interview and you don't hear from them ever again. It's like you could have just said no.

**TK:** You call them 3 times and then there like "well we turned you down"

**Matt:** I like them, I think they are fine. It was just a big clustered mess. I agree it has gotten better.

**Joe:** So, you feel like you are being paraded around to talk to a bunch of random people?

**Matt:** Yeah.

**Joe:** So with your majors, how do you believe your major is actually preparing you for the job search and making you successful and giving you the right tools to succeed and get hired at the company that you want?

**Trayce:** My degree will have the right major on it. That's all they are really looking for. I mean there are some people that are more technical obviously. So, I'm not a technical person that is why I'm in sales so my degree will say mechanical engineering. I took the classes, but I might not have the knowledge base that someone else does. So, I guess the main thing is to get you in the door.

**Linus:** They can't really teach you everything you need to know for a given job so they are just teaching you to learn things really quickly. I think electrical does that very well.

**Trayce:** Problem solving too.

**Linus:** How to do this without teaching it.

**TK:** I like my major because as you do things it's like "oh this is actually helpful". C&C machines, programming, and all the mechanical classes I've taken. (examples of what was helpful, I assume.

**Linus:** That's a thing you can do

**Joe:** I know that one of the things you guys were saying was hard with getting the job you want was standing out because we are an engineering school; there are engineers everywhere. You are just finding the next best engineer. Do you feel that your program is giving you the right tools to stand out or at least pointing you in the right direction if you wanted to do something else that you could go pursue something to make you stand out?

**Linus:** Oh yeah.

**Trayce:** The sales certificate alone. People see that on my resume and it is a turn on to see that you have that experience and there is the polymer one for mechanical and there is another certificate for mechanical. There are all the minors you can get like a business minor. There are a lot of different options that make you not just another engineer.

**TK:** kind of questioning why my advisor hasn't told me about any of this. I don't like the clubs, I have been to like 3 because everyone says you should get into a club helps your resume. I was in the robotics club for 2 years and that was the one I kind of stuck to, but I have a problem with the club because it seemed unorganized. It's all student, all the students are in charge. It is pretty unorganized, like I walked in there and I'll be sitting there for like week to week and they don't have anything for me. Well I could do this, this, and this. They are like this guy is working on this, the other guy is working in this; you can go over there and help them. When I go over there and help them, they don't want help because they are doing it.

**Trayce:** (to TK) Are you only doing the technical clubs?

**TK:** I did baha and I didn't like. Then I went to robotics. I tried to do ballroom dancing and I did not like that.

**Trayce:** I know companies like to see non-generic clubs on there as well. That would definitely make you stand out.

**Linus:** They do a lot of advertising for the clubs in the freshman tools classes. So, I think that is very helpful for one seeking a variety of clubs.

**TK:** I didn't have tools

**Linus:** Oh well that would do it. That explains one thing

**Joe:** You think that is one of the things they put out most if you want to get more involved is to join one of these clubs?

**Linus:** Yes, they paraded them in front of you and they are like “hey we do this stuff come join us, we are cool, we’ll give you experience”.

**Trayce:** I had the same experience as TK, not really given anything.

**Linus:** But if you stay there long enough, usually they say “Hey you’re not busy have this thing it is really easy and then you don’t know how to do it.

**TK:** You should have a communications major in the club even if it has nothing to do with it. Just to organize it or something.

**Joe:** So, I know that you guys said that most of you hadn’t heard of the sales certificate. What have you heard from other students about the sales certificate for engineers at the university? Have you heard like good thing or bad things or anything?

**Linus:** Good for jobs. They want it, so you should probably do it even if you’re not really interested in sales.

**Matt:** I heard it is relatively easy to get. It is definitely something worth looking into.

**Trayce:** Before I got it, I heard good things about it. Like I’m on the sales path, so I talked to a lot of engineers that have already taken it and I heard nothing but good things. A couple extra classes, I enjoyed the classes. I heard it was a nice break from the engineering classes which it legitimately is. I take 18 credits of engineering, a two-credit business class is like I can breathe.

**Joe:** And you hadn’t heard anything? (to TK)

**TK:** Didn’t even know it existed. Why didn’t you tell me Joe?

**Joe:** Moving on. What drawbacks in our current sales program would you address if you could form what you’ve heard of it?

**Trayce:** Promotion. Clearly you (pointing to TK) haven’t heard about it. I think they are starting to promote it more now. For sure when I first got here I almost dropped out of engineering because I don’t like it. Then I found sales and I was like I wouldn’t want to do anything else. They should just promote it in tools

**Linus:** That would make sense.

**Trayce:** Do you like people? Do you not want to be designing all day? There is another path for you.

**TK:** I think like getting the advisors to talk about it because you see them every semester. Like maybe after the first year “Hey here are some things that you can do besides engineering.

**Trayce:** Because you think as an engineer, I will be sitting behind a desk all day doing autocad.

**Linus:** I should figure out who my advisor is.

**Joe:** What are the most important features of a career be to you and what would your dream job look like?

**Linus:** Has to be interesting.

**TK:** We are going into real-estate, we are going to do it.

**Matt:** It has to be innovated in a way. I don't want to be sitting there doing autocad and excel sheet. At the same time, I don't want to be in a lab every day. I want to do more stuff because I feel like that's a lot of wear on yourself. You have make a new design every day, it will become a lot. So, I'm trying to find a mix between those two, but that's really hard to find. Those ones are usually the ones that people snag up quick.

**TK:** I'm going to work my butt off until I get money.

**Linus:** I want a sense of accomplishment if nothing else. That would be nice.

**Joe:** I mean that makes sense.

**TK:** We got to sell the houses dude. That's sales. I'll leave that up to you though because I didn't get the sales certificate.

**Matt:** You're going to fail him, stop.

**Joe:** (to trayce): What does your dream career look like?

**Trayce:** Flexibility and doing something new every day. The co-op that I'm looking at is doing something different every day. Doing sales and living somewhere else and having different options for my hours. More flexibility and getting to talk to people every day.

**Joe:** So, you guys don't want it to be a tiresome job?

**Collective:** Yes.

**Joe:** So at this point, what would be stopping you from picking up a sales certificate.

**TK:** Graduation

**Matt:** It might be too soon or too close to pick it up because it wasn't really promoted enough to know it would take this many credit hours to do. It would have been nice to do that earlier, so yeah I guess that would be what stopped it.

**Linus:** Motivation. I'm not particularly interested.

**TK:** I'd be interested two years ago.

**Matt:** We get it.

**Joe:** That basically concludes the majority of the interview. I do have a couple of questions specifically for you (Pointing at Trayce). So how did you initially hear of the sales certificate?

**Trayce:** I found about sales from a company called "Preferable Foods" when I went to go visit them and they were explaining what sales is. When I came back to Akron I was looking more into it. I cant remember if I was talking to somebody who told me about it. It was an outside company that I hear about tech engineering sales and came back to Akron and tried to find it on my own. I didn't really find out from Akron about it. I do remember getting emails shortly after I figured it out on my own. They sent me information about information sessions, and I do remember going to one of those.

**Joe:** What would you tell another engineer to get them to participate in the sales program?

**Trayce:** It is something the companies are looking for it. Most engineers wind up in sales at some point in their career, so it is good to have that on there. It also gives you an interest into the business side of things. I didn't think that I would like business. So, taking three classes about business; I learned that I don't actually mind it and it is kind of interesting. So, if anything it is like 3 electives (9 credits) to figure out if you like business and it looks good on your resume and your degree. There really is no reason not to, is the main reason to do it.

# Engineering Sales survey

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Start of Block: IRB BLOCK

Q1

Thank you for your interest in helping with this **approximately 7 minute short survey**. This study is approved by the University of Akron IRB under protocol #20190302. Your responses will be kept completely anonymous.

**The survey deals with questions about a professional certificate that undergraduate students can earn. Even if you are not interested in such an extra certificate, we are very interested in your opinion.**

If you have any concerns about this study, feel free to contact the principal student investigator Joe Scott (jis11@zips.uakron.edu), or the University of Akron Internal Review Board at 330-972-8311.

Do you want to participate?

- Yes (1)
- No (2)

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Q31 Browser Meta Info

- Browser (1)
- Version (2)
- Operating System (3)
- Screen Resolution (4)
- Flash Version (5)
- Java Support (6)
- User Agent (7)

End of Block: IRB BLOCK

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Start of Block: Block 1

Q2 What is your primary area of study?

▼ Business (1) ... Other (3)

*Display This Question:*

*If What is your primary area of study? = Business*

Q3 What is your primary major area of study?

▼ Accounting (1) ... Supply chain (7)

*Display This Question:*

*If What is your primary area of study? = Engineering*

Q4 What is your primary major area of study?

▼ Biomedical Engineering (1) ... Mechanical Engineering (4)



Q5 How well has your primary major prepared you on the following aspects

	Not at all (1)	Somewhat (2)	Very well (3)
Core theory (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal skills (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting with companies (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepared me for the job market (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

*Display This Question:*

*If What is your primary area of study? = Engineering*

Q33 Do you expect to work in a pure **Engineering** position after graduation?

- Definitely yes (1)
  - Probably yes (2)
  - Might or might not (3)
  - Probably not (4)
  - Definitely not (5)
- 

Q7 Do you expect to work in a pure **Sales** position after graduation?

- Definitely yes (1)
  - Probably yes (2)
  - Might or might not (3)
  - Probably not (4)
  - Definitely not (5)
- 

*Display This Question:*

*If What is your primary area of study? = Engineering*

Q8 Do you expect to work in a blended position that requires **both Engineering and Sales skills** after graduation?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

---

*Display This Question:*

*If What is your primary area of study? = Business*

*And What is your primary major area of study? != Sales*

Q9 Do you expect to work in a blended position that requires **both** **#{Q3/ChoiceGroup/SelectedChoices}** **and Sales skills** after graduation?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

---

*Display This Question:*

*If What is your primary area of study? = Business*

*And What is your primary major area of study? = Sales*

Q10 Do you expect to work in a blended position that requires a specific business skill (e.g. marketing, finance, accounting) as well as Sales skills after graduation?

- Definitely yes (1)
- Probably yes (2)
- Might or might not (3)
- Probably not (4)
- Definitely not (5)

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Page Break

*Display This Question:*

*If What is your primary area of study? = Engineering*

Q11 Have you heard about the Professional Selling for Engineering Majors Certificate at the University of Akron?

- Yes, I've heard of it, but I am not interested in it (1)
- Yes, in fact, I am (planning on) getting that certificate (2)
- No, but I would be interested in it (3)
- No, and I would not be interested in it (4)

---

*Display This Question:*

*If What is your primary area of study? = Business*

Q12 Have you heard about the Certificate in Professional Selling at the University of Akron?

- Yes, I've heard of it, but I am not interested in it (28)
- Yes, in fact, I am (planning on) getting that certificate (29)
- No, but I would be interested in it (30)
- No, and I would not be interested in it (31)

---

*Display This Question:*

*If Have you heard about the Certificate in Professional Selling at the University of Akron? = Yes, I've heard of it, but <u>I am not</u> interested in it*

*Or Have you heard about the Certificate in Professional Selling at the University of Akron? = No, and I <u>would not be</u> interested in it*



Q13 What factors are stopping you for adding a sales certificate or other credential to your major?

	Strongly agree (1)	Agree (2)	Somewhat agree (3)	Neither agree nor disagree (4)	Somewhat disagree (5)	Disagree (6)	Strongly disagree (7)
Lack of interest (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Costs (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No benefit for me (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q14 How well do the following statements describe you?

	Describes me very well (1)	Describes me well (2)	Neutral (3)	Does <u>not</u> describe me (4)	Does <u>not</u> describe me at all (5)
I enjoy working in situations involving competition with others. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that winning is important in both work and games. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try harder when I am in competition with other people. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being #1 is important to me. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am very academically capable. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Page Break

Q15 How many credit hours do you think a Professional Selling certificate requires?

- 3 credit hours (1)
- 6 credit hours (2)
- 9 credit hours (3)
- 12 credit hours (4)
- 15 credit hours (5)
- 18 credit hours (6)
- 21 credit hours (7)

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Page Break

Q16 It turns out you can complete a Professional Selling Certificate in a minimum of **12 credit hours**. Given that information, would you be interested in adding such a certificate to your major?

- Definitely yes (1)
  - Probably yes (2)
  - Might or might not (3)
  - Probably not (4)
  - Definitely not (5)
- 

Q17 Would a specific **scholarship** likely change your interest in a Professional Selling Certificate?

- No, regardless of any scholarship, I am not interested (1)
- Even without a scholarship, I am already interested (2)
- Yes, but only a \$500 or more scholarship would influence my decision making (3)
- Yes, but only a \$750 or more scholarship would influence my decision making (4)
- Yes, but only a \$1,000 or more scholarship would influence my decision making (5)
- Yes, but only a \$1,500 or more scholarship would influence my decision making (6)
- Yes, but only a \$2,000 or more scholarship would influence my decision making (7)

Q18 What benefits do you think sales classes could offer you?

	Not a benefit for me at all (1)	Somewhat of a benefit for me (2)	Substantial benefit for me (3)
Break from coursework (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meet new people (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Differentiation in job market (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pay difference in career (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GPA boost (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving soft skills (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q34 Assume that you are interested in taking a specific certificate on top of your major, at what point in your academic career would you be most interested in starting that?

Freshman   Sophomore   Junior   Senior   Year 5  
and  
beyond

0   1   2   3   4   5

Best time to start a certificate ()



Q19 What do you realistically **expect** to earn in your first position directly after graduating (total compensation, i.e. salary plus everything else)?

- Less than \$40,000 (1)
- Between \$40,001-\$50,000 (2)
- Between \$50,001-\$60,000 (3)
- Between \$60,001-\$70,000 (4)
- Between \$70,001-\$80,000 (5)
- Between \$80,001-\$90,000 (6)
- More than \$90,001 (7)
- I have no idea (8)



Q20 What would be the most efficient way for you to learn about a sales certificate program at The University of Akron?

	Very <b>ineffective</b> (1)	somewhat <b>ineffective</b> (2)	somewhat effective (3)	very effective (4)
Email (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flyers (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presentations in intro classes (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tabling (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Word of mouth (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academic advisors (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 Do you have any immediate **role-models** (e.g. parent, close friend, other close relative) who is a:

	Yes (1)	No (2)
Sales person (1)	<input type="radio"/>	<input type="radio"/>
Engineer (2)	<input type="radio"/>	<input type="radio"/>
Marketeer (3)	<input type="radio"/>	<input type="radio"/>
Finance professional (4)	<input type="radio"/>	<input type="radio"/>
Accountant (5)	<input type="radio"/>	<input type="radio"/>
Economist (6)	<input type="radio"/>	<input type="radio"/>



Q22

How well do the following statements describe your personality?

I see myself as someone who...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
is reserved (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is generally trusting (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tends to be lazy (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is relaxed, handles stress well (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
has few artistic interests (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is outgoing, sociable (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tends to find fault with others (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does a thorough job (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gets nervous easily (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
has an active imagination (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q32

How well do the following statements describe your personality?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I feel I have the capability to succeed academically. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am highly confident in my academic ability. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to me to perform better than others on a task. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I respect salespeople (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I perceive salespeople favorably (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I admire salespeople (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 What best describes your gender?

- Male (1)
- Female (2)
- Other (3)

Q24 What best describes your academic progress?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)

Q25 What is your GPA at Akron?

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Q26 What was your ACT score?

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Q27

As promised, this survey is completely anonymous. However, if you have become interested in a Sales Certificate and want to receive additional information, feel free to provide your email address. Alternatively, you could also send an email to [beuk@uakron.edu](mailto:beuk@uakron.edu) for more information.

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**End of Block: Block 2**