

## How Many Times to Keep Calling?

Since Kevin MacDonell took over the phonathon at Dalhousie University, he and I have had a number of discussions about the call center and how it works. I've learned a lot from these discussions, especially because Kevin often raises intriguing questions about how data analysis can make for a more efficient and productive calling process.

One of the questions he's concerned with is the number of call attempts it's worth making to a given alum. That is, he's asking, "How many attempts should my callers make before they 'make contact' with an alum and either get a pledge or some other voice-to-voice response – or they give up and stop calling?"

Last January Kevin was able to gather some calling data from several schools that may, among other things, offer the beginnings of a methodology for answering this question. What we'd like to do in this piece is walk you through a technique we've tried, and we'd like to ask you to send us some reactions to what we've done.

Here's what we'll cover:

1. How we decided whether contact was made (or not) with 41,801 alums who were recently called by the school we used for this exercise.
2. Our comments on the percentage of contacts made and the pledge money raised for each of eight categories of attempts: 1, 2, 3, 4, 5, 6, 7, and 8 or more.
3. How we built an experimental predictive model for the likelihood of making contact with a given alum.
4. How we used that model to see when it might (and might not) make sense to keep calling an alum.

## Deciding Whether Contact Was Made

John Sammis and I do tons of analyses on alumni databases, but we're nowhere near as familiar with call center data as Kevin is. So I asked him to take a look at the table you see below that shows the result of the last call made to almost 42,000 alums. Then I asked, "Kevin, which of these results would you classify as contact made?"

**Table 1: Frequency Percentage Distribution for Results of Last Call Made to 41,801 Alums**

RESULT	COUNT	%
No Pledge	12424	29.72
AnsMachin	10880	26.03
Disconnect	3275	7.84
Wrong Num	3152	7.54
Spec Pldg	2491	5.96
No Answer	1880	4.50
UnspPldg	1734	4.15
Reassigned	1475	3.53
Callback2	1299	3.11
Out Cntry	626	1.50
Not Avail	610	1.46
DoNot Call	472	1.13
Already PI	442	1.06
Busy	302	0.72
Hung Up	204	0.49
FAX2	133	0.32
Day	89	0.21
No Solicit	80	0.19
Prvcy Mgr	53	0.13
FAX	50	0.12
Callback	44	0.11
Remove Lst	42	0.10
NAO	39	0.09
Deceased	5	0.01

He said he'd go with these categories:

- ALREADY PLEDGED
- NO PLEDGE

- NO SOLICIT
- REMOVE LIST
- SPEC PLDG (i.e., Specified Pledge)
- UNSP PLDG (i.e., Unspecified Pledge)
- DO NOT CALL

Kevin’s reasoning was that, with each of these categories, there was a final “voice to voice” discussion between the caller and the alum. Sometimes this discussion had a pretty negative conclusion. If the alum says “do not call” or “remove from list” (1.13% and 0.10% respectively), that’s not great. “No pledge” (29.72%) and “unspecified pledge” (4.15%) are not so hot either, but at least they leave the door open for the future. “Already pledged” (1.06%)? What can you say to that one? “And which decade was that, sir?”

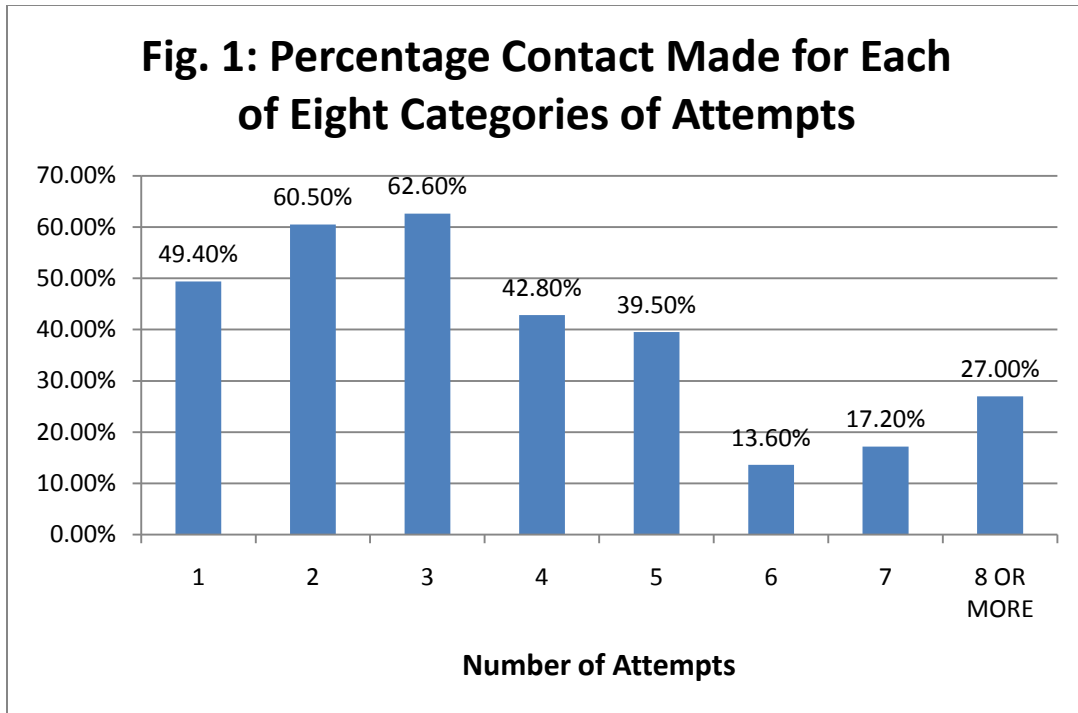
Lame humor aside, the point is that Kevin feels (and I agree), that, for this school, these categories meet the criterion of “contact made.” The others do not.

### **Our Comments on Percentage Contact Made and Pledge Money Raised for Each of Eight Categories of Attempts**

Let’s go back to the title of this piece: “How Many Times to Keep Calling?” Maybe the simplest way to decide this question is to look at the contact rate as well as the pledge rate by attempt. Why not? So that’s what we did. You can see the results in Table 2 and Figure 1 and Table 3 and Figure 2.

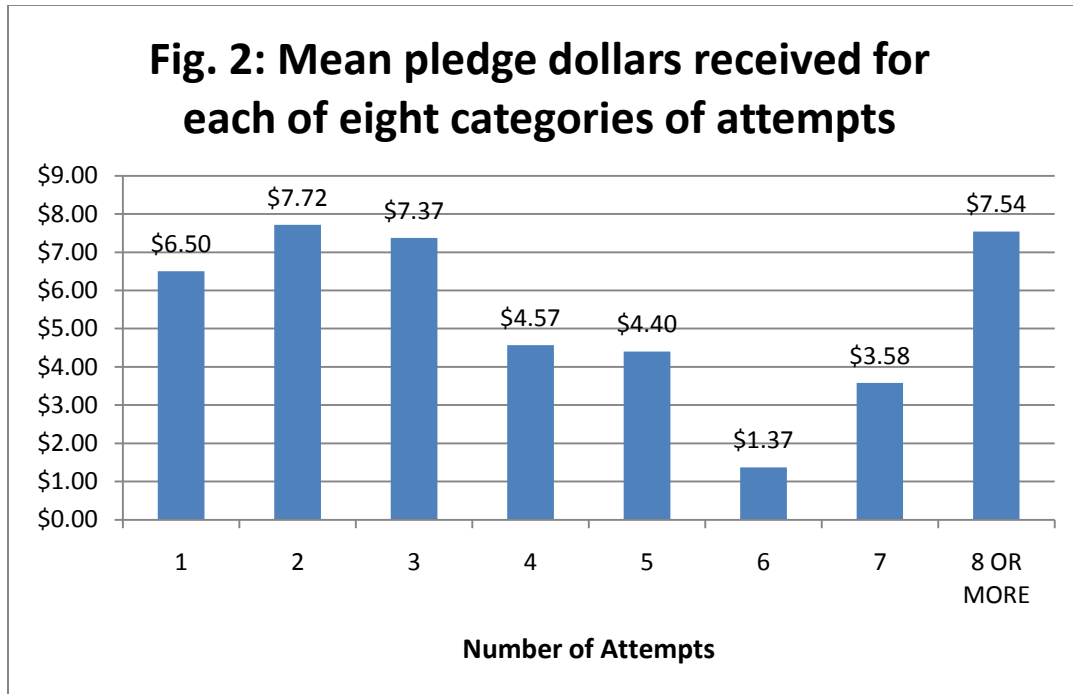
**Table 2: Number of Contacts Made and Percentage Contact Made For Each of Eight Categories of Attempts**

<b>NUMBER OF ATTEMPTS</b>	<b>Count</b>	<b>CONTACTS MADE</b>	<b>% CONTACT MADE</b>
1	12201	6023	49.4%
2	6400	3870	60.5%
3	4318	2705	62.6%
4	4347	1859	42.8%
5	3210	1269	39.5%
6	6591	895	13.6%
7	2203	380	17.2%
8 OR MORE	2531	684	27.0%



**Table 3: Total pledge dollars and mean pledge dollars received for each of eight categories of attempts**

NUMBER OF ATTEMPTS	Count	TOTAL PLEDGE\$ RECEIVED	MEAN PLEDGE\$ RECEIVED
1	12201	\$79,316	\$6.50
2	6400	\$49,385	\$7.72
3	4318	\$31,814	\$7.37
4	4347	\$19,885	\$4.57
5	3210	\$14,120	\$4.40
6	6591	\$9,050	\$1.37
7	2203	\$7,880	\$3.58
8 OR MORE	2531	\$19,075	\$7.54



We've taken a hard look at both these tables and figures, and we've concluded that they don't really offer helpful guidelines for deciding when to stop calling at this school. Why? We don't see a definitive number of attempts where it would make sense to stop. To get specific, let's go over the attempts:

- **1<sup>st</sup> attempt:** This attempt clearly yielded the most alums contacted (6,023) and the most dollars pledged (\$79,316). However, stopping here would make little sense if only for the fact that the attempt yielded only a third of the \$230,526 that would eventually be raised.
- **2<sup>nd</sup> attempt:** Should we stop here? Well, \$49,385 was raised, and the contact rate has now jumped from about 50% to over 60%. We'd say keep going.
- **3<sup>rd</sup> attempt:** How about here? Over \$30,000 raised and the contact rate has jumped even a bit higher. We're not stopping.
- **4<sup>th</sup> attempt:** Here things start to go downhill a bit. The contact rate has fallen to about 43% and the total pledges raised have fallen below \$20,000. However, if we stop here, we'll be leaving more money on the table.
- **5<sup>th</sup> attempt through 8 or more attempts:** What can we say? Clearly the contact rates are not great for these attempts; they never get above the 40% level. Still, money for pledges continues to come in – over \$50,000.

Even before we looked at the attempts data, we were convinced that the right question was not: "How many call attempts should be made before callers stop?" The right question was:

“How many call attempts should be made with what alums?” In other words, with some alums it makes sense to keep calling until you reach them and have a chance to ask for a pledge. With others, that’s not a good strategy. In fact, it’s a waste of time and energy and money.

So, how do you identify those alums who should be called a lot and those who shouldn’t?

## **How We Built an Experimental Predictive Model for the Likelihood of Making Contact with a Given Alum**

This was Kevin’s idea. Being a strong believer in data-driven decision making, he firmly believed it would be possible to build a predictive model for making contact with alums. The trick would be finding the right predictors.

Now we’re at a point in the paper where, if we’re not careful, we risk confusing you more than enlightening you. The *concept* of model building is simple. The problem is that *constructing* a model can get very technical; that’s where the confusing stuff creeps in.

So we’ll stay away from the technical side of the process and just try to cover the highpoints. For each of the 41,801 alumni included in this study we amassed data on the following variables:

- Email (whether or not the alum had an email address listed in the database)
- Lifetime hard credit dollars given to the school
- Preferred class year
- Year of last gift made over the phone (if one was ever made)
- Marital status missing (whether or not there was no marital code whatsoever for the alum in the marital status field)
- Event Attendance (whether or not the alum had ever attended an event since graduation)

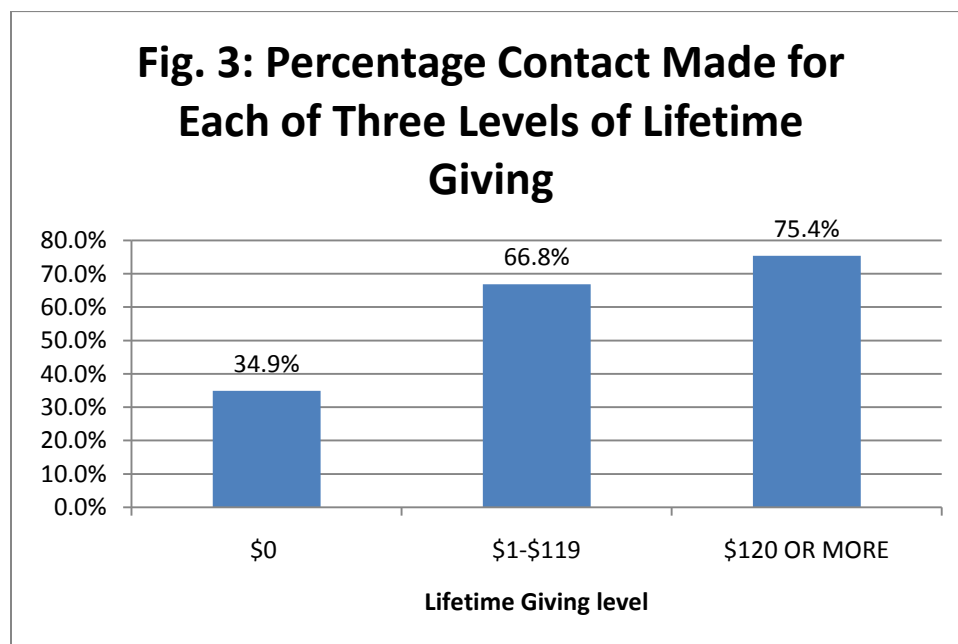
With these variables we used a technique called multiple regression to combine the variables into a score that could be used to predict an alum’s likelihood of being contacted by a caller. Because multiple regression is hard to get one’s arms around, we won’t try to explain that part of what we did. We’ll just ask you to trust us that it worked pretty well.

What we will do is show you the relationship between three of the above variables and whether or not contact was made with an alum. This will give you a sense of why we included them as predictors in the model.

We’ll start with lifetime giving. Table 4 and Figure 3 show that as lifetime giving goes up, the likelihood of making contact with an alum also goes up. Notice that callers are more than twice as likely to make contact with alums who have given \$120 or more lifetime (75.4%) than they are to make contact with alums whose lifetime giving is zero (34.9%).

**Table 4: Number of Contacts Made and Percentage Contact Made for Three Levels of Lifetime Giving**

LEVELS OF LIFETIME GIVING	Count	CONTACTS MADE	% CONTACT MADE
\$0	33271	11623	34.9%
\$1-\$119	4308	2878	66.8%
\$120 OR MORE	4222	3184	75.4%

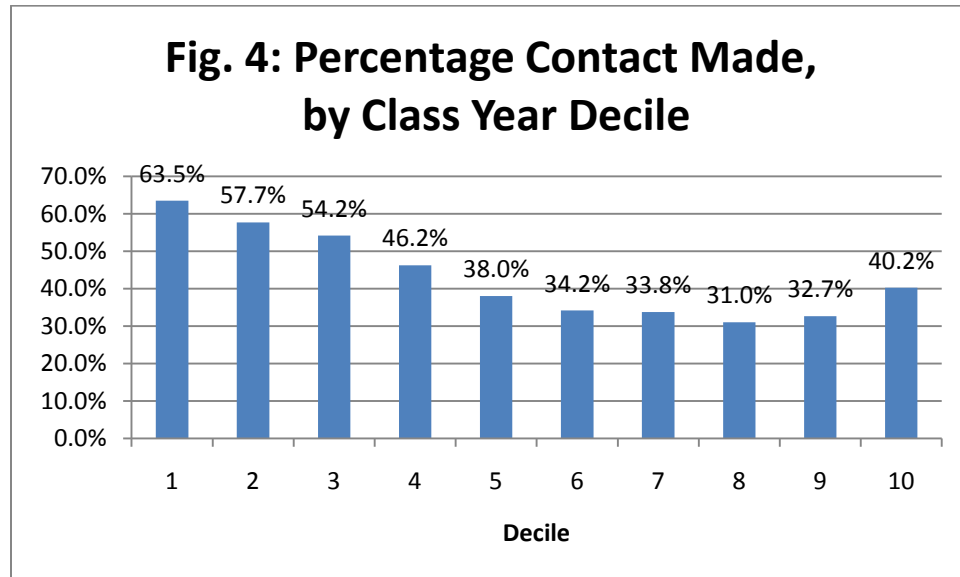


How about Preferred Class Year? The relationship between this variable and contact rate is a bit complicated. You'll see in Table 5 that we've divided class year into ten roughly equal size groups called "deciles." The first decile includes alums whose preferred class year goes from 1964 to 1978. The second decile includes alums whose preferred class year goes from 1979 to 1985. The tenth decile includes alums whose preferred class year goes from 2008 to 2010.

A look at Figure 4 shows that contact rate is highest with the older alums and then gradually falls off as the class years get more recent. However, the rate rises a bit with the most recent alums. Without going into boring and confusing detail, we can tell you that we're able to use this less than straight line relationship in building our model.

**Table 5: Percentage Contact Made by Class Year Decile**

CLASS YEAR DECILE	Count	FIRST YEAR	LAST YEAR	% CONTACT MADE
1	3527	1964	1978	63.5%
2	3718	1979	1985	57.7%
3	3879	1986	1990	54.2%
4	4068	1991	1994	46.2%
5	3538	1995	1997	38.0%
6	4037	1998	2000	34.2%
7	3003	2001	2002	33.8%
8	5971	2003	2005	31.0%
9	4185	2006	2007	32.7%
10	5875	2008	2010	40.2%

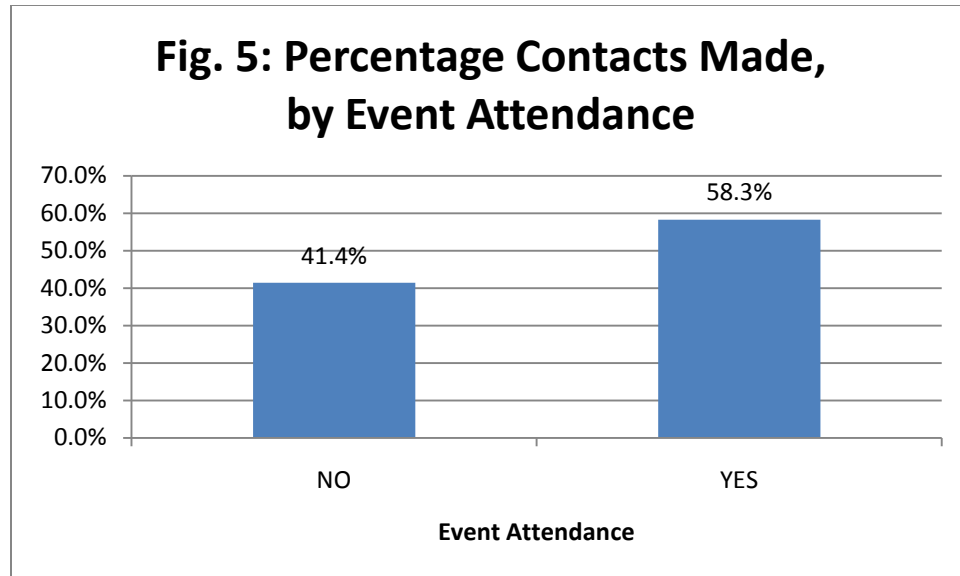


The third variable we'll look at is Event Attendance. Table 6 and Figure 5 show that, although relatively few alums (2,211) attended an event versus those who did not (35,590), the contact rate was considerably higher for the event attenders than the non-attenders: 58.3% versus 41.4%.

**Table 6: Percentage Contact Made by Event Attendance**

EVENT ATTENDANCE	Count	% CONTACT MADE
NO	39590	41.4%
YES	2211	58.3%





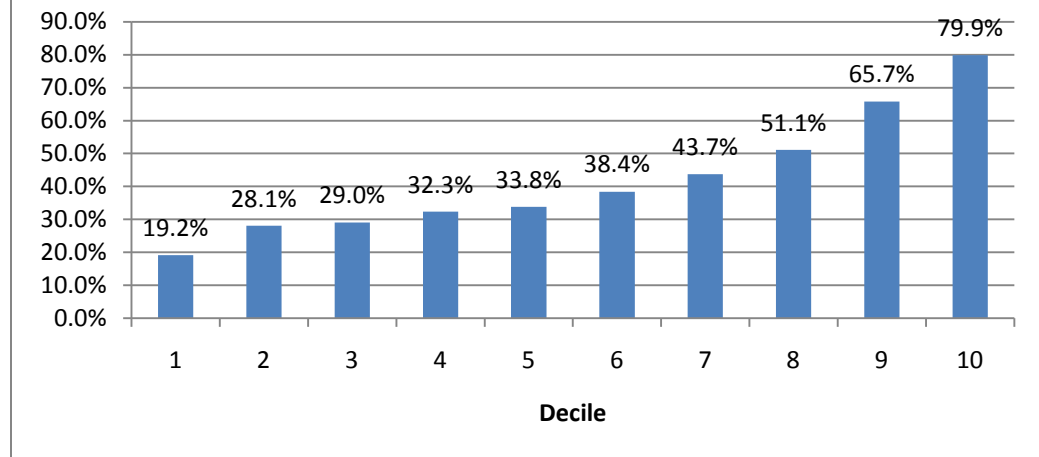
The predictive model we built generated a very granular score for each of the 41,801 alums in the study. To make it easier to see how these scores looked and worked, we collapsed the alums into ten roughly equal size groups (called deciles) based on the scores. The higher the decile the better the scores. (These deciles are, of course, different from the deciles we talked about for Preferred Class Year.)

Shortly we'll talk about how we used these decile scores as a possible method for deciding when to stop calling. But first, let's look at how these scores are related to both contact rate and pledging. Table 7 and Figure 6 deal with contact rate.

**Table 7: Number of Contacts Made and Percentage Contact Made, by Contact Score Decile**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACT MADE
1	3833	735	19.2%
2	3625	1018	28.1%
3	5041	1463	29.0%
4	3331	1077	32.3%
5	4899	1658	33.8%
6	4233	1627	38.4%
7	4206	1838	43.7%
8	4273	2183	51.1%
9	4180	2748	65.7%
10	4180	3338	79.9%

**Fig. 6 Percentage Contact Made,  
by Contact Score Decile**



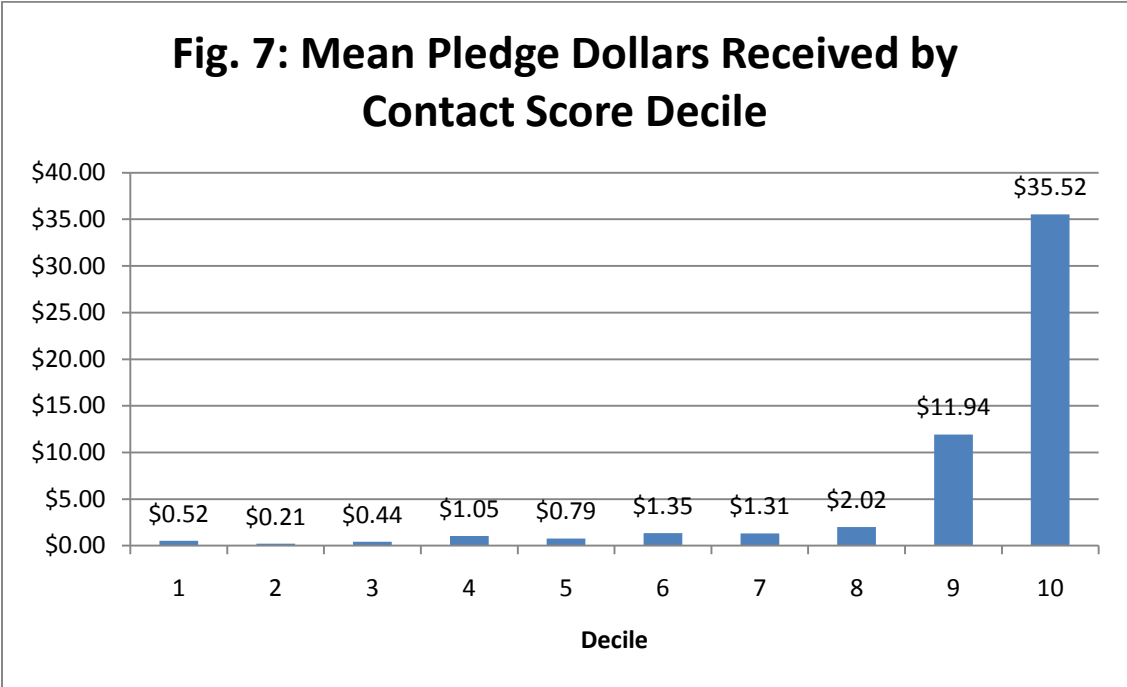
Clearly, there is a strong relationship between the scores and whether contact was made. Maybe the most striking aspect of these displays is the contrast between contact rate for alums in the 10<sup>th</sup> decile and that for those in the 1<sup>st</sup> decile: 79.9% versus 19.2%. In practical terms, this means that, over time in this school, your callers are going to make contact with only one in every five alums in the 1<sup>st</sup> decile. But in the 10<sup>th</sup> decile? They should make contact with *four* in every five alums.

How about pledge rates? We didn't build this model to predict pledge rates. However, look at Table 8 and Figure 7. Notice the striking differences between the lower and upper deciles in terms of total dollars pledged. For example, we can compare the total pledge dollars received for the bottom 20% of alums called (deciles 1 and 2) and the top 20% of alums called (deciles 9 and 10): about \$2,700 versus almost \$200,000.

**Table 8: Total Pledge Dollars and Mean Pledge Dollars Received by Contact Score Decile**

CONTACT SCORE DECILE	Count	TOTAL PLEDGE\$ RECEIVED	MEAN PLEDGE\$ RECEIVED
1	3833	\$1,990	\$0.52
2	3625	\$750	\$0.21
3	5041	\$2,225	\$0.44
4	3331	\$3,490	\$1.05
5	4899	\$3,855	\$0.79
6	4233	\$5,710	\$1.35
7	4206	\$5,510	\$1.31
8	4273	\$8,645	\$2.02
9	4180	\$49,897	\$11.94
10	4180	\$148,453	\$35.52

**Fig. 7: Mean Pledge Dollars Received by Contact Score Decile**



## How We Used the Model to See When It Might (And Might Not) Make Sense to Keep Calling an Alum

In this section we have a lot of tables and figures for you to look at. Specifically, you'll see:

- Both the number of contacts made and the contact rate by decile score level for each of the first six attempts. (We decided to cut things off at the sixth attempt for reasons we think you'll find obvious.)
- A table that shows the total pledge dollars raised for each attempt by decile score level.

Looked at from one perspective, there is a huge amount of information to absorb in all this. Looked at from another perspective, we believe there are a few obvious facts that emerge.

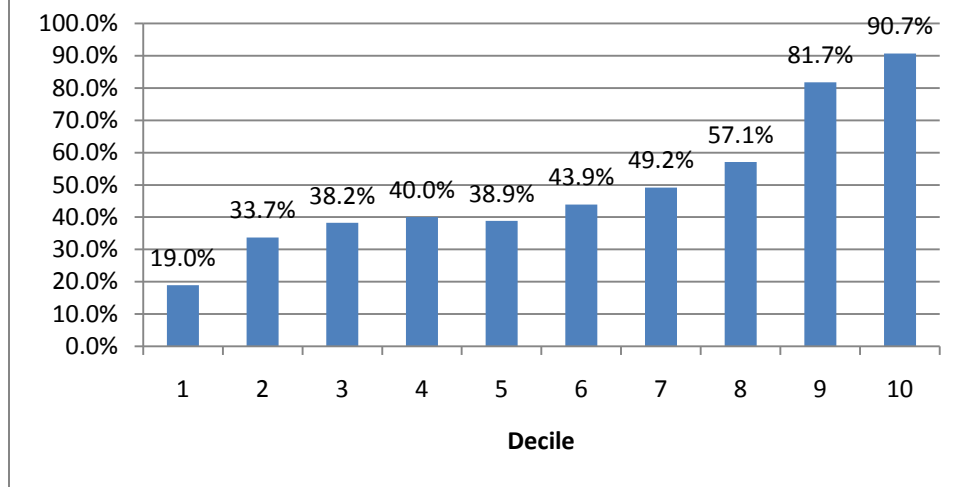
Go ahead and browse through the tables and figures for each of the six attempts. After you finish doing that, we'll tell you what we see.

### The First Attempt

**Table 9: Number of Contacts Made and Percentage Contact Made, by Contact Score Decile for the First Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACT MADE
1	1182	224	19.0%
2	985	332	33.7%
3	1290	493	38.2%
4	980	392	40.0%
5	1477	574	38.9%
6	1372	602	43.9%
7	1253	616	49.2%
8	1277	729	57.1%
9	1133	926	81.7%
10	1252	1135	90.7%

**Fig. 8 Percentage Contact Made by Contact Score Decile for the First Attempt**

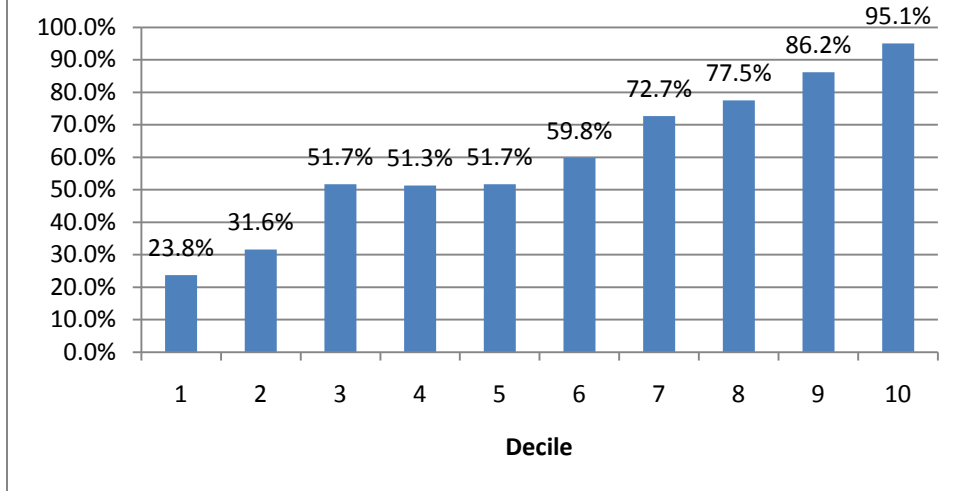


**The Second Attempt**

**Table 10: Number of Contacts Made and Percentage Contact Made, by Contact Score Decile for the Second Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACT MADE
1	665	158	23.8%
2	699	221	31.6%
3	700	362	51.7%
4	448	230	51.3%
5	671	347	51.7%
6	582	348	59.8%
7	579	421	72.7%
8	645	500	77.5%
9	658	567	86.2%
10	753	716	95.1%

**Fig. 9 Percentage Contact Made by Contact Score Decile for the Second Attempt**

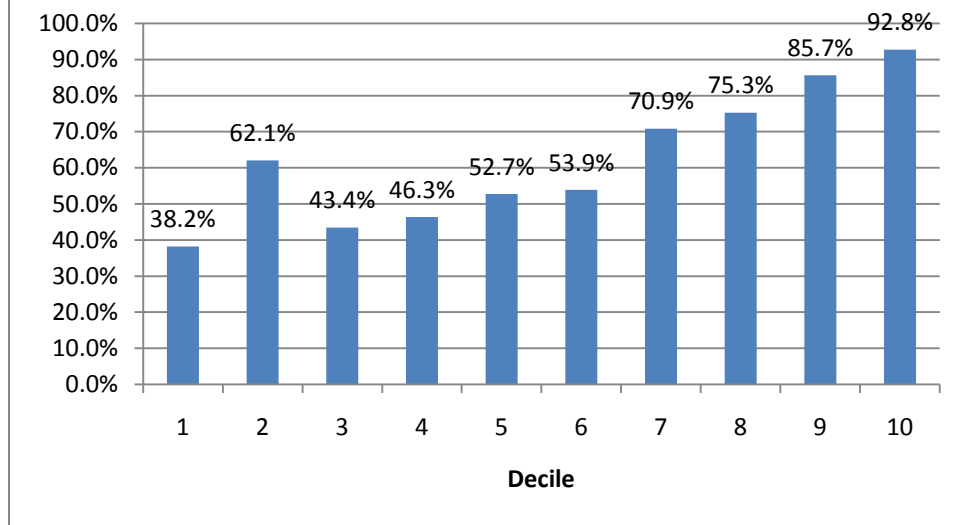


**The Third Attempt**

**Table 11: Number of Contacts Made and Percentage Contact Made by Contact Score Decile for the Third Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACT MADE
1	317	121	38.2%
2	282	175	62.1%
3	541	235	43.4%
4	341	158	46.3%
5	548	289	52.7%
6	501	270	53.9%
7	422	299	70.9%
8	437	329	75.3%
9	460	394	85.7%
10	469	435	92.8%

**Fig. 10 Percentage Contact Made by Contact Score Decile for the Third Attempt**

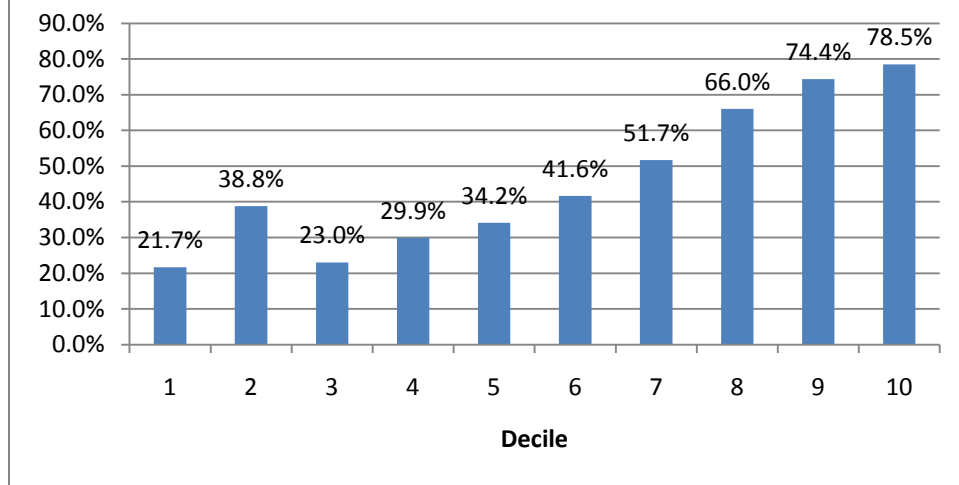


**The Fourth Attempt**

**Table 12: Number of Contacts Made and Percentage Contact Made by Contact Score Decile for the Fourth Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACTS MADE
1	420	91	21.7%
2	304	118	38.8%
3	736	169	23.0%
4	408	122	29.9%
5	571	195	34.2%
6	459	191	41.6%
7	412	213	51.7%
8	321	212	66.0%
9	348	259	74.4%
10	368	289	78.5%

**Fig. 11 Percentage Contact Made by Contact Score Decile for the Fourth Attempt**



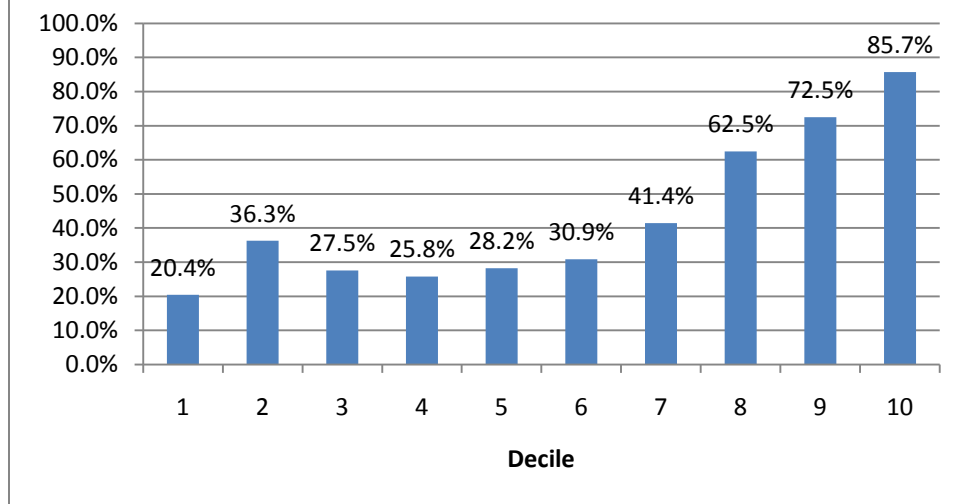
**The Fifth Attempt**

**Table 13: Number of Contacts Made and Percentage Contact Made by Contact Score Decile for the Fifth Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACT MADE
1	348	71	20.4%
2	259	94	36.3%
3	465	128	27.5%
4	345	89	25.8%
5	415	117	28.2%
6	337	104	30.9%
7	304	126	41.4%
8	240	150	62.5%
9	273	198	72.5%
10	224	192	85.7%



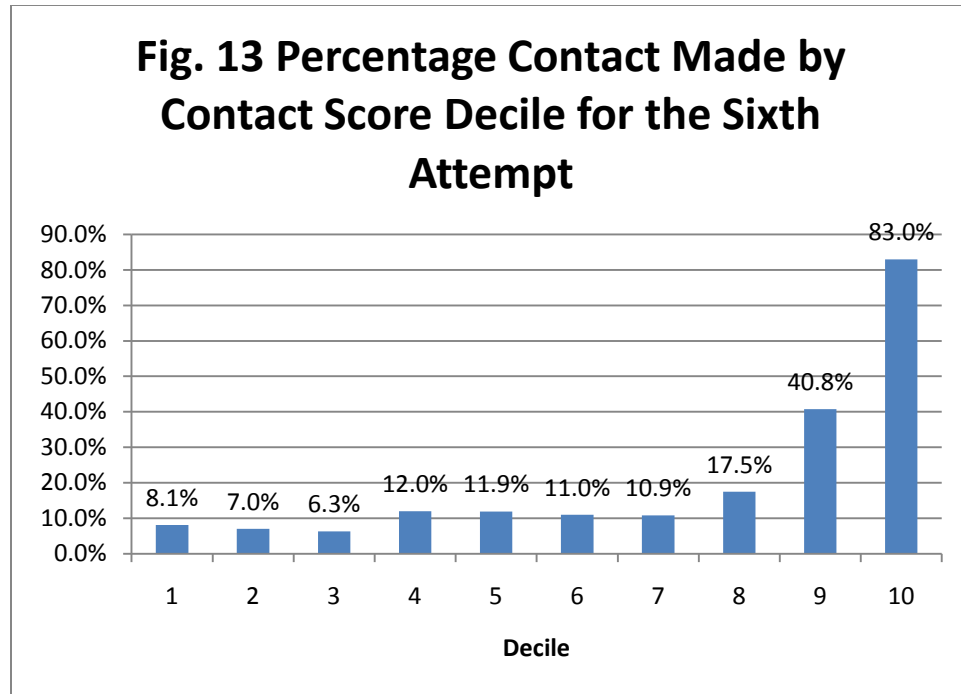
**Fig. 12 Percentage Contact Made by Contact Score Decile for the Fifth Attempt**



**The Sixth Attempt**

**Table 14: Number of Contacts Made and Percentage Contact Made by Contact Score Decile for the Sixth Attempt**

CONTACT SCORE DECILE	Count	CONTACTS MADE	% CONTACTS MADE
1	690	56	8.1%
2	899	63	7.0%
3	1114	70	6.3%
4	569	68	12.0%
5	697	83	11.9%
6	630	69	11.0%
7	820	89	10.9%
8	676	118	17.5%
9	314	128	40.8%
10	182	151	83.0%



This is what we see:

- For each of the six attempts, the contact rate increases as the score decile increases. There are some bumps and inconsistencies along the way (see Figure 10, for example), but this is clearly the overall pattern for each of the attempts.
- For all the attempts, the contact rate for the lowest 20% of scores (deciles 1 and 2) is *always* substantially lower than the contact rate for the highest 20% of scores (deciles 9 and 10).
- Once we reach the sixth attempt, the contact rates fall off dramatically for all but the tenth decile.

Now take a look at Table 15 that shows the total pledge money raised for each attempt (including the seventh attempt and eight or more attempts) by score decile. You can also look at Table 16 which shows the same information but with the amounts exceeding \$1,000 highlighted in red.

**Table 15: Total Pledge Dollars Raised In Each Attempt by Contact Score Decile**

DECILE	1ST ATTEMPT	2ND ATTEMPT	3RD ATTEMPT	4TH ATTEMPT	5TH ATTEMPT	6TH ATTEMPT	7TH ATTEMPT	8 OR MORE ATTEMPTS
1	\$685	\$225	\$590	\$60	\$0	\$430	\$0	\$0
2	\$235	\$185	\$135	\$50	\$100	\$45	\$0	\$0
3	\$775	\$735	\$290	\$200	\$205	\$20	\$0	\$0
4	\$1,680	\$725	\$420	\$210	\$145	\$290	\$20	\$0
5	\$1,410	\$1,025	\$500	\$450	\$370	\$70	\$0	\$30
6	\$2,255	\$1,145	\$630	\$990	\$380	\$140	\$170	\$0
7	\$2,015	\$1,025	\$990	\$240	\$740	\$100	\$350	\$50
8	\$3,510	\$2,165	\$805	\$655	\$615	\$430	\$10	\$455
9	\$14,895	\$10,420	\$7,254	\$3,095	\$3,043	\$2,025	\$2,095	\$7,070
10	\$51,856	\$31,735	\$20,200	\$13,935	\$8,522	\$5,500	\$5,235	\$11,470

**Table 16: Total Pledge Dollars Raised In Each Attempt by Contact Score Decile with Pledge Amounts Greater Than \$1,000 Highlighted In Red**

DECILE	1ST ATTEMPT	2ND ATTEMPT	3RD ATTEMPT	4TH ATTEMPT	5TH ATTEMPT	6TH ATTEMPT	7TH ATTEMPT	8 OR MORE ATTEMPTS
1	\$685	\$225	\$590	\$60	\$0	\$430	\$0	\$0
2	\$235	\$185	\$135	\$50	\$100	\$45	\$0	\$0
3	\$775	\$735	\$290	\$200	\$205	\$20	\$0	\$0
4	\$1,680	\$725	\$420	\$210	\$145	\$290	\$20	\$0
5	\$1,410	\$1,025	\$500	\$450	\$370	\$70	\$0	\$30
6	\$2,255	\$1,145	\$630	\$990	\$380	\$140	\$170	\$0
7	\$2,015	\$1,025	\$990	\$240	\$740	\$100	\$350	\$50
8	\$3,510	\$2,165	\$805	\$655	\$615	\$430	\$10	\$455
9	\$14,895	\$10,420	\$7,254	\$3,095	\$3,043	\$2,025	\$2,095	\$7,070
10	\$51,856	\$31,735	\$20,200	\$13,935	\$8,522	\$5,500	\$5,235	\$11,470

We could talk about these two tables in some detail, but we'd rather just say, "Wow!"

### Some Concluding Remarks

We began this paper by saying that we wanted to introduce what might be the beginnings of a methodology for answering the question: "How many attempts should my callers make before they 'make contact' with an alum and either get a pledge or some other voice to voice response – or they give up and stop calling?"

We also said we'd like to walk you through a technique we've tried, and we'd like to ask you to send us some reactions to what we've done. So, if you're willing, we'd really appreciate your getting back to us with some feedback on what we've done here.

Specifically, you might tell us how much you agree or disagree with these assertions:

- There is no across-the-board number of attempts that you should apply in your program, or even to any segment in your program; the number of attempts you make to reach an alum very much depends on who that alum is.
- There are some alums who should be called and called because you will eventually reach them and (probably) receive a pledge from them. There are other alums who should be called once, or not at all.
- If the school we used in this paper is at all representative of other schools that do calling, all across North America huge amounts of time and money are wasted trying to reach alums with whom contact will never be made nor will any pledges be raised.
- Anyone who is at a high level of decision making regarding the annual fund (whether inside the institution or a vendor) should be leading the charge for the kind of data analysis shown in this paper. If they're not, someone needs to have a polite little chat with them.

We look forward to getting your comments.