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Recommended Citation

Arnold, Alicia J., "A Study of Birth order Relative to Decisions Made by Teams in a Business Simulation Course" (2005). *Chancellor's Honors Program Projects*.
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**A Study of Birth Order Relative to Decisions Made by
Teams in a Business Simulation Course**

By Alicia Arnold

Dr. Ernest Cadotte, Advisor

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I. The Study

The study of birth order is simply the study how people relate to their family, peers, and others based upon their position in their family constellation. Generally there are some personality or character traits that tend to exhibit themselves in particular birth orders. The most notable authority on the subject is Dr. Kevin Lemans, who has been speaking on the subject for over twenty years. He has been able to pick out general tendencies of first borns, middle children, last borns, and only children. For example, first borns tend to be perfectionists, well organized, hard driving and natural leaders; last borns, or babies, tend to be charming, affectionate, precocious, and people persons.

Birth order is not astrology or anything like it; it is a study of family life in an attempt to understand why people act the way they do. These characteristics are only general tendencies. In *The New Birth Order Book*, Dr. Leman explains that not everyone displays the characteristics immediately associated with their birth order; some only children act like last borns, some middle children act like first borns, etc. Some of these differences can be explained by looking specifically at the family situation. For example, even though a boy with two older sisters and a younger brother and sister is obviously a middle child, he is also the first born son, and will be more likely to display tendencies associated with the first born than the middle child.

II. The Course

The Business Administration 351 course is designed to teach students skills in different stages of business production and sales as well as teamwork through a computer simulation of the first two years of starting and running a business. The computer program simulates a market economy into which computers are just beginning to enter.

Each week teams make decisions about the type of computers they will sell, the market segments on which they will focus, the types of advertising they will use and where they will use them, as well as production schedules, number of manufacturing and sales employees and their wages, and how they will fund their business. Students in the BA 351 course respond to several evaluations and surveys throughout the semester.

Evaluations include individual information and personality characteristics, evaluations of "company" performance and teamwork, evaluations of other team members, and evaluations of the simulations.

III. The Project

I looked at student responses to the questionnaires and teamwork evaluations and attempted to discover any relational patterns that might exist between their functional birth order and their functions within their teams. I observed differences between teams of different dynamics, and I tried to examine how those dynamics were affected by the dominate birth orders within the teams. I hypothesized based on general birth order knowledge and readings, and then compared my hypotheses to the results of the team performances and evaluations. Some of my hypotheses were dispelled in relation to the students in this course.

Introduction: Birth Order

The study of birth order is simply the study how people relate to their family, peers, as well as how they work and live, based upon their position within their family constellation. Generally there are some personality or character traits that tend to exhibit themselves in particular birth orders. One notable authority on the subject is Dr. Kevin Leman, who has been speaking on the subject for over twenty years. He has been able to pick out general tendencies of first-borns, middle children, last-borns, and only children. For example, first borns tend to be perfectionists, well organized, hard driving and natural leaders; last borns, or babies, tend to be charming, affectionate, precocious, and people persons. Middle children are the peacemakers who have the greatest ability to adapt to their surroundings. Only children have been given both the adoration of being the center of attention and also the critique from their closest life models – adults. As such, they can exhibit tendencies normally attributed to either a first-born, and last-born, or both.

Birth order is a study of family life in an attempt to understand why people act the way they do. These characteristics are only general tendencies; as Dr. Leman explains in *The Birth Order Book*, not everyone displays the characteristics immediately associated with their birth order; some only children act like last borns, some middle children act like first borns, etc. Some of these differences can be explained by looking specifically at the family situation. For example, even though a boy with two older sisters and a younger brother and sister is obviously a middle child, he is also the first born son, and will be more likely to display tendencies associated with the first born than the middle child. These exceptions tend to complicate the existing differences in the way people deal and interact with each other, especially in the work environment.

Various studies and theories on birth order have been produced throughout the last half century. Scientists and psychologists have discussed and argued over the actual influence of this concept in everyday life. This study aims to find any plausible connection between the general tendencies associated with each birth order type and the decisions, work, and interactions made by students during the course of a business simulation class at the University of Tennessee.

The Business Simulation

The College of Business Administration at the University of Tennessee has a business simulation course required of all undergraduate business majors. In this simulation students start up and run a business in a computer industry that is at the beginning of its growth stage. Each discussion class consists of approximately 25 students who are grouped into teams of 4 or 5. Each team makes decisions for its company for the first two years of operation within the simulation. The decisions include everything from choose a name for the company, to decide where to build manufacturing plants, to determining the workforce and their wages, to planning out advertising schedule and venues, to increasing debt to leverage the company. During the course students present a business plan to a “venture capitalist” to attempt to raise capital for their company. At various stages of the simulation students are given evaluations to assist them in developing teamwork abilities and improve their knowledge of the different areas of the simulated business: Manufacturing, Marketing, Sales, Accounting & Finance, and Human Resources. A “balanced scorecard” is used to determine the overall performance of each team. Financial performance, market performance, marketing effectiveness, investment in the future,

wealth, human resource management, asset management, and manufacturing productivity are the categories comprising the balanced scorecard.

The Evaluations

Four evaluations were reviewed in this study. The first was the personality questionnaire that students did at the beginning of the course; questions relating to their birth positions within their families were added to the questionnaire. Along with those questions, responses about age, sex, academic classification, and major were also reviewed. All but ten students in the course responded to the initial questionnaire. The second evaluation was actually the first fall evaluation (1st eval). The first fall evaluation and the post-business plan evaluation (2nd eval) were the same questionnaire. The questionnaire was filled out by the team members in response to the people on their team only. The questionnaire was divided into five groups:

- (Q1)Q1-7: Team Relations;
- (Q2)Q8-13: Individual Interactions;
- (Q3)Q1-7: Leadership;
- (Q4)Q1-7: Personal Actions; and
- (Q5)Group Q: Open Comments.

The Q1 questions related how the team member acted on behalf of the team. The Q2 questions described the member's activities with that particular respondent. The Q3 questions showed the team member's leadership and expressiveness within team discussions, and the Q4 questions related how much the member's personal activities interfered with team functions. Q5

allowed the respondents to give open-ended comments to that team member. Scores ranged from 0 to 5; for the Q1, Q2, and Q3 questions, a higher score demonstrated more satisfaction among the team members. For the Q4 questions, a lower score demonstrated more satisfaction.

The Hypotheses

Based upon general tendencies associated with each birth order type, my hypotheses are as follows:

- “Well-rounded” teams, consisting of all four birth order types, will have more positive responses to the peer evaluations than teams consisting of only two or three birth order types.
- Teams comprised of only first-borns will have accommodating team members because they are used to having to change to satisfy their younger siblings. However, there will be some discrepancy over who the true leader is or should be, which could lead to some conflict in getting work done. Still, the team member will have a natural drive to achieve that will help them push beyond other teams.
- Teams comprised of only last-borns will likely be very pleasant and amiable, as each member is used to having other people around. However, the actual work process may be slower because of a less intense drive to achieve among the team members, which could translate into delayed or late work.
- Middle-borns would take a peacemaking strategy within the team, adapting to fit the mold of the team rather than trying to change it.
- Only-borns, having tendencies of both first-borns and last-borns, would be able to work with either type in some manor. However, they would likely either pick a type to work

with, or simply do their own work. Either way, they would benefit the team by making sure their own work gets done.

Top Performers

Each of the top performing teams had at least one first born in their group; 5 of these teams were first born dominate. Three of these teams had an only child. All but 3 of the teams had at least one middle child; one group had a majority of middle children. Eight teams had at least one last born; 1 was dominated by last-borns. Only one of the groups was “well-rounded”, having a member from each birth order; a total of 8 teams had at least 3 of the 4 birth orders. All of the survey respondents from one team were first borns – it was the only one of these teams that consisted entirely of one birth order.

Total Overall -- Top Performers	
Company Name	Total
Inatech Computers	2532.877
Vol Tech	831.674
Vortex	614.657
Skynet	415.532
TennTech	347.212
Pentagon Tech Inc.	329.963
Intatech	291.529
Cypress Connections	283.748
GBS	281.549
InfinityPC (IPC)	268.903

Think Tanks	227.203
eMagine	206.793
VolTech	150.147
InnoTech	0.000
	89.493
Average	434.927

Of the top performers, only four had scores below 4 in their Q1 and Q2 responses for their 1st eval, and that number dropped to 1 for the 2nd eval. All but four had at least one score of 5 in their Q1 and Q2 responses for the 1st eval; that decreased to all but five teams for the 2nd eval. In the 2nd eval, one of the teams had just one score below 5 for their Q1 & Q2 responses; one other group had scores of 5 for all but 4 of the team's Q1 & Q2 responses, and one group had one only team member that did not receive straight 5s in their Q1 & Q2 responses. All but one of the teams had at least one score above 2 in the Q3 responses for the 1st eval; that number doesn't change for the 2nd eval responses, although the team in question does. Three teams have a score of 0 from one of the Q3 responses for the 1st eval; but there are no scores of 0 in the 2nd eval Q3 responses. One team actually had responses of 4 in their Q3 responses for the 1st eval. In the 1st eval, one team had scores above 2 for all but two of their Q3 responses; that same team had no score of 2 or below in their Q3 responses for the 2nd eval. The overall number of scores above 2 for Q3 responses did decrease from the 1st eval to the 2nd eval. None of the teams scored above 1 in any of the Q4 responses for either eval. In the 1st eval, three teams had only two incidences of Q4 responses above 0 among their whole team. In the 2nd eval, one team had zero

incidences of Q4 responses for the entire group. Two other teams have only one incidence of Q4 responses above 0 for their groups.

Only three of the teams spent no time in the practice session. Conversely, only two teams logged practice time for each of their members. These two teams spent an average of almost 19 hours in the practice sessions and slightly more than 93 hours in the master sessions. The top performing teams logged an average of approximately 113.27 hours total in the simulation. All but two of the teams had an overall total performance score below 200 points; three of the teams had scores above 400 points. All but nine of the teams were top performers among their respective classes for at least half of the balanced scorecard categories. Two of the teams had the highest scores of their classes in 7 of the eight categories. All but two of the teams had the highest score of their classes for the financial performance category; the same statistic applies to the marketing performance category. Still, half of the teams had the lowest score among their classes in at least one category. The low comparative scores for four of the teams were in the Investment in Future category.

Bottom Performers

All but 2 of the bottom performing teams had at least one first born; but only 2 of these teams were first-born dominate. There were only 3 teams with an only child. Eight of the teams had at least one middle child. There was at least one last born in every bottom performing team; 6 of them were dominated by last-borns. There were 2 “well-rounded” teams and a total of 7 teams that had at least three of the four birth orders. Five of the teams consisted of only first- and last-borns. The other 2 consisted of only middle- and last-borns. None of the teams consisted entirely of one birth order.

Total Overall -- Lowest Performers	
Company Name	Total
InnoTech	0.000
Initech	0.000
MicroPC	5.848
Conglomo Computers	3.253
TaTonka	1.398
Inetech Inc	1.182
Micro Machines	0.826
Horizon Computing	0.188
FAR Microcomputers	0.107
B.J. CEM Corporation	0.100
Imperium Computers	0.002
Comp. Life, Inc.	0.000
Metropolis	0.000
D.C.M. Inc.	0.000
Average	7.305

Half of the bottom performers had scores below 4 in their Q1 and Q2 responses for the 1st eval; six still had scores below 4 in those responses for the 2nd eval. In the 1st eval, one team had a member who did not score a 4 or above for any of the Q1&2 responses. In the 2nd eval, a different had a member who did not score a 4 or above for any of those responses; this member actually had a score of 2 for one of the responses. Eight of the teams had scores of 5 in their

Q1&2 responses for the 1st eval. The number remains steady for the 2nd eval, although the teams differ. Each of the teams had at least one score above 2 in their Q3 responses for the 1st eval. However, one team had only one score above 2, and that same team had 3 scores of 0. Two other teams have a score of 0 in their 1st eval Q3 responses as well. One team had only one score of 2 or below and actually had two scores of 4 in their 1st eval Q3 responses. For the 2nd eval, two teams had no scores above 2 in their Q3 responses. One team had only one score above 2, as well as one score of 0. Two other teams also had scores of 0 in the 2nd eval. The same high-scoring team from the 1st eval, had only three scores of 2 or below in the 2nd eval Q3 responses. Still, the overall number of scores above 2 in the Q3 responses decreased from the 1st eval to the 2nd eval. Two teams had scores above 1 for the 1st eval Q4 responses. There are also two teams with scores above 1 for the 2nd eval Q4 responses, and one of those teams had a score above 2 for one of those responses.

Six of the teams spent no time in the practice sessions for the simulation. Only one team logged practice time for every team member; that team spent approximately 25.72 hours in the practice sessions and approximately 133.87 hours in the master sessions. The average total time logged in the practice and master sessions for the lowest performing teams was approximately 83.05 hours. Five of the teams scored a 0 for total overall performance; these same teams had negative scores for their financial performance category of the balanced scorecard. Two of these teams also had negative scores for the wealth category. All but four of the lowest performing teams had the lowest scores among their competition for at least half of the balanced scorecard categories. Eight of the teams had the highest scores among their class for at least one of categories.

Other Notable Performances

Of the five “well-rounded” teams, two placed last, one second-to-last, one second, and one first in their respective classes. Those teams which received a noticeable number of high scores on the evaluations tended to polarize the spectrum, either performing very well in the simulation or not well at all. They also tended to be dominated by a particular birth order, usually either first-borns or last-borns.

Many times the teams showing some of the lowest evaluation scores actually performed rather well compared to the other teams in their classes. One team consisting of two first-borns and three last-borns, had several scores in the 1st evaluation that were magnified in the 2nd evaluation as dissatisfaction with one of the first-born team members. However the team actually performed well in the simulation, placing second in the class. Another team of only last-born respondents consistently had low peer evaluation scores, but also placed second in its class. One other team having each of the birth orders as well as one non-respondent seemed to had trouble relating to the middle-born, who as a result received noticeably lower evaluation scores than the rest of the team members. However, once again, the team placed second among its class.

One team consisted entirely of last borns, all the same age, each with two older siblings, with similar majors, and the team leader being the only female in the group. The members of this team gave each other wonderful evaluations, both for 1st evaluations and the post-business plan evaluations. The team had only five scores below 5 in the 1st eval Q1&2 responses and, excluding one team member who did not receive any 5s in the 2nd eval, only 6 scores below 5 in the 2nd eval. There were only four scores of 2 or below and four scores of 4 in the 1st eval Q3

responses, combined with eight responses of 2 or below and one response of 4 in the 2nd eval Q3 responses. In the Q4 responses for both evaluations, the team had only two scores above 0. The team spent approximately 126.61 hours total in the simulation. However, the performance for the team did not seem to match up with the team evaluations; the team placed third out of the five teams in that class. The total overall performance score was 5.5 points above the 4th place finisher, where as the scores of the top two finishers in that class were each well over 200 points. The team had the highest score of the class in one category and the lowest score of the class in another; otherwise, the team performance was “average” for the rest of the balanced scorecard.

	Type				
	First	Last	Middle	Only	(blank)
Sample of Questions -- 1st Evaluation					
Average of works to build the entire team.	4.463	4.467	4.446	4.461	4.020
Average of is a team player.	4.588	4.564	4.610	4.611	4.155
Average of is someone I would work with again	4.416	4.463	4.462	4.468	3.920
Average of treats me fairly and justly	4.608	4.582	4.578	4.597	4.460
Average of assumed a leadership role	1.923	2.079	2.039	1.989	1.490
Average of spent time on personal matters during a meeting	0.193	0.224	0.257	0.076	0.380

	Type				
	First	Last	Middle	Only	(blank)
Sample of Questions -- 2nd Evaluation					
Average of works to build the entire team.	4.447	4.482	4.468	4.524	4.135
Average of is a team player.	4.511	4.549	4.477	4.666	4.335
Average of is someone I would work with again	4.381	4.471	4.439	4.566	4.090

Average of treats me fairly and justly	4.529	4.554	4.560	4.579	4.460
Average of assumed a leadership role	1.693	1.862	1.811	1.903	1.315
Average of spent time on personal matters during a meeting	0.184	0.191	0.229	0.063	0.305

Conclusions

The “well-rounded” teams did not show any clear example of what to expect from different types of people interacting in a work environment. Some teams performed well while others did not, but with no clear pattern. The teams consisting of only first- or last-borns did not give a very clear reference to actual activities either. The members of extreme last-born dominate teams did seem to get along with each, and some did seem to find that camaraderie more important than team performance, but a few other teams performed quite well within their classes. In many cases the first-born apparently helped to be a guiding force for the teams that performed well, even when that birth order was not in the majority or represented by the team leadership position. The only-borns do seem be consistent with previous theory; none received drastically low marks on peer evaluation. However, there were not enough only-borns represented among the population of students responding to the evaluations to really understand the influence that the onlys might had among several different groups.

Birth order does not appear to be a consistent factor in the ability of these students to work together in the business simulation. Every top performing team had a first-born, and every bottom performing team had a last born. However, only two of the lowest performing teams do not had a first-born, so the presence of that birth order alone does not make the difference. Not many teams that dominated by last-borns performed well relative to their classes, despite the

high marks on their evaluations. The relations among the team members seem to be relatively stable; neither the highest or lowest performing teams had drastically positive or negative peer evaluations.

One explanation could be the fit between the particular members. Perhaps, for example, the first-borns were able to relate to the last-borns through the use of previous family experience with last-borns, and vice versa. The first-borns treated the last-borns in a way that, as last-borns, they would expect to be treated and therefore the last-borns responded in kind. Although there is no evidence in the data to substantiate this theory, this suggestion might possibly explain the positive evaluations that many of the teams consisting of only two birth order types.

Other factors to consider in other studies could include the how the students functioned within their families, and if there was any carryover into their academic pursuits. For instance, one of the students, while technically a first-born, functioned within his family as a second-born, or middle child. What would be his functional role in the workplace or academic environment? Such factors could had influenced the results of this study, which is not quite that in depth. At this level, however, it is clear that while this study may bring to light some of the subtle influences that birth order had on interactive environments, there is much more still to be found about its complete relevance.