

ANALYSIS OF THE INCIDENCE OF DYSLEXIA IN ENTREPRENEURS AND ITS IMPLICATIONS

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ACADEMIC ABSTRACT

This study explored the incidence of dyslexia in US entrepreneurs. 35% of entrepreneurs in this sample were dyslexic but only 1% of corporate managers. This compares with a US national incidence of up 15%. Dyslexic entrepreneurs were more likely to own several companies, employed more staff and were better at delegation. Non-dyslexic entrepreneurs owned companies for longer suggesting they were able to cope with growth and the accompanying structure that is implemented. Dyslexic entrepreneurs seem to prefer the early stages of business start-up when they are able to control their environment. What implications are there for the entrepreneur and investor?

EXECUTIVE SUMMARY

There is a higher incidence of dyslexia in entrepreneurs in the USA than in the normal and corporate populations. Thirty-five percent of US entrepreneurs in this sample reported as dyslexic but less than 1% of corporate managers, this compares with a US national incidence of up 15% (See note 1: Morgan & Klein 2000; Morris, 2002).

The study found dyslexic entrepreneurs were more likely to own several companies and to grow their companies more quickly than those who were not dyslexic. They employed more staff and reported an increased ability to delegate. Non-dyslexic entrepreneurs stayed with their companies for longer suggesting they were able to cope with growth and the accompanying structure that is implemented. In contrast dyslexic entrepreneurs seem to prefer the early stages of business start up when they are able to control their environment (Taylor & Walter, 2003; Gerber, 1992). These results may have implications for those investing in new venture creation.

Fitzgibbon & O'Connor (2002) suggest successful dyslexics develop skills to compensate for their deficits. These compensatory skills may provide an edge in business. In this study dyslexic entrepreneurs reported as excellent at oral communication, delegation and creative and spatial awareness tasks. Are these compensatory strategies transferred to the business arena and should we be encouraging all entrepreneurs to develop these soft skills? Many dyslexics in this study underachieved at school, but the role of the mentor was found to be pivotal. Are we teaching our potential entrepreneurs in the best possible way and should the use of mentors be more widely encouraged in the teaching of entrepreneurship?

INTRODUCTION

Anecdotal evidence suggests there is a high incidence of dyslexia in entrepreneurs. Initial research in the UK supported this (Logan, 2001). In addition research with dyslexic adults suggests those who successfully overcome their difficulties develop coping strategies that may also be useful in business (Everatt, Steffert & Smythe, 1999). This project set out to explore these theories.

OBJECTIVE OF STUDY

This research explored two issues; the first was to compare the rate of dyslexia in two population groups: entrepreneurs and corporate managers in the United States. The second was to compare the traits, attributes and early year's experience, of those respondents identified as dyslexic from the entrepreneurs group, with that of the non- dyslexic group. The traits and attributes examined were those commonly associated with entrepreneurs.

METHODOLOGY

The research was completed in two phases. First a questionnaire was devised for all participants to compare the incidence of dyslexia in entrepreneurs and corporate managers. Then a sub set of entrepreneurs were chosen for further analysis in the form of an in-depth questionnaire. This second questionnaire (which at this stage has been piloted with 36 respondents) examined family and educational backgrounds, experiences whilst running their own company and self-perception of various entrepreneurial related attributes.

First study

The first questionnaire which was designed for both the corporate managers and entrepreneurs comprised of three main sections. The first focused on company details and their role within this company, the second included questions relating to their education and attributes. The third section incorporated a series of Yes/No questions from 'A Revised Adult Dyslexia Checklist' (Vinegrad, 1994); these questions were able to identify which respondents in the study displayed signs of dyslexia.

The academy for Entrepreneurial leadership at the University of Illinois provided contact details for entrepreneurs and the Kauffman Foundation, Business and Financial database provided the contact details of entrepreneurs and corporate managers. The database also included details concerning company size and their financial status. A correspondence was sent to 2,000 potential participants explaining that the research was investigating characteristics of corporate managers and entrepreneurs and asked them to complete the questionnaire. A total of 102 entrepreneurs and 37 corporate managers responded. The follow up questionnaire explored in more detail issues that were identified in the first survey. This has been piloted with respondents from the first group together with entrepreneurs from the young entrepreneur's database.

Each key variable was analysed to reveal any differences between the two groups; dyslexic entrepreneurs and non-dyslexic entrepreneurs. A control group of corporate managers was included in the analysis to compare incidence of dyslexia.

SUMMARY OF ANALYSIS

The primary variable to represent these groups was a split between those who displayed dyslexic characteristics (n=36) and those who did not (n=66). The control group of corporate managers was included in the analysis. A description of the sample can be found below.

TABLE 1
Sample Composition

			Total
	Entrepreneur	Corporate Manager	
Non-Dyslexic	66	34	100
Dyslexic*	36	3	39
Total	102	37	139

*With four or more recognisable traits

A further two variables representing the split were created; Dyslexia6 (6 or more traits were taken to represent a high level of dyslexia) and Dyslexia8, (A person with all 8 traits would be on the extreme end of the dyslexia scale). The same analysis was applied to these groups. Obviously the sample size of dyslexic entrepreneurs was reduced significantly (Dys6: n=17, Dys8: n=5), however where trends were found, it was interesting to explore whether they were more or less significant as the level of dyslexia increased. They are reported within the relevant section.

Table 2 below provides a summary of all the analysis performed, and any relevant notes. All dependent variables were included in the analysis; however the main body of the report focuses on those where trends were found. The analysis was split into three areas, examining variables relating: to business aspects; personal attributes and early experiences.

Note on statistical tests used:

Where there was enough in the sample to run tests, either Chi Square, Fisher's Exact test or Mann Whitney tests were used, depending on the nature of the dependent variables and relevant assumptions. P values are reported in table 2, including marginal significance. Trends which were not significant are noted as n.s.

TABLE 2
Summary of Analysis

Areas of Interest	Difference Dys4	Stat Sig	Control Group	Dys6 Dys8	Notes
Business Aspects					
Industry	No Pattern	-	-		cleaned: new variable created
No of staff to manage	Trend: +ve	P<.05	No Impact		Need a bigger control group to explore further
No of years running company	Trend: -ve	P<.06	n/a	6: p<.01	
No of years in position	No Pattern	-	-		
Any other businesses	Trend: +ve	P<.01	n/a	6: p<.05	
Personal Attributes					
Artistic ability	No Pattern	-	-		
Self confidence	No Pattern	-	-		
Public speaking	No Pattern	-	-		
Risk taking	Trend: +ve	n.s	Trend		Perhaps with bigger sample, this becomes marginally sig with Control
Risk decreased over time	No Pattern	-	-		
Important attribute	No Pattern	-	-		
Visualise business	-	-	-		All respondents bar one said Yes n=36
Communication skills	Trend	n.s.	Trend		n=34
Delegate	Trend	n.s.	Stronger Trend		n=36
Sports ability	No Pattern	-			
Early Experiences					
School experience	Trend, -ve	n.s	Trend		Very small and not at all significant
Early years influence	Trend	P<.05	See notes		cleaned: new variable created
Sports played	No Pattern	-			diverse information
Adversity	No Pattern	-			

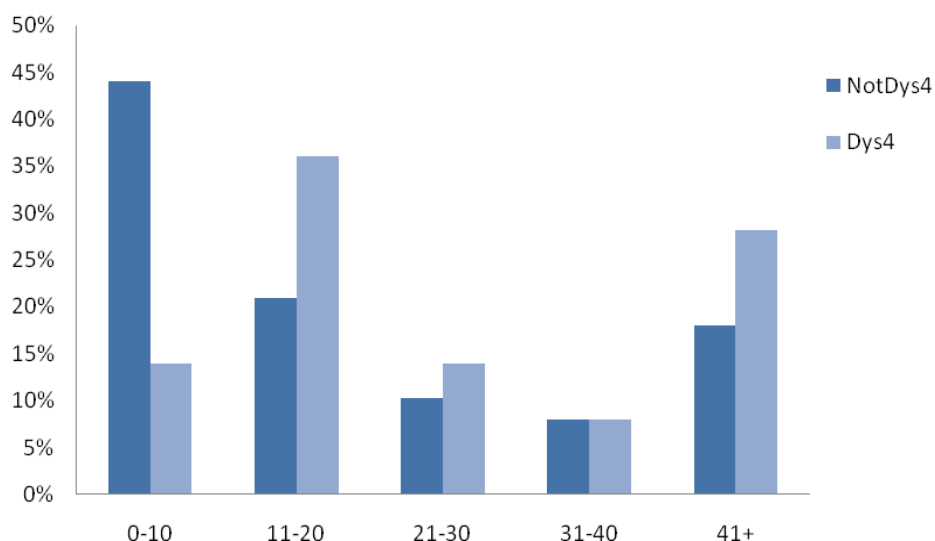
Analysis of Business Aspects

Chosen Industry

No pattern emerged for the type of Industry the entrepreneur had chosen. Whilst there was some difference between dyslexics and non-dyslexics these were not significant. Both groups showed a preference for the service industries with manufacturing second and engineering third.

Number of Staff Managed

FIGURE 1
Numbers Managed by Entrepreneurs n = 99

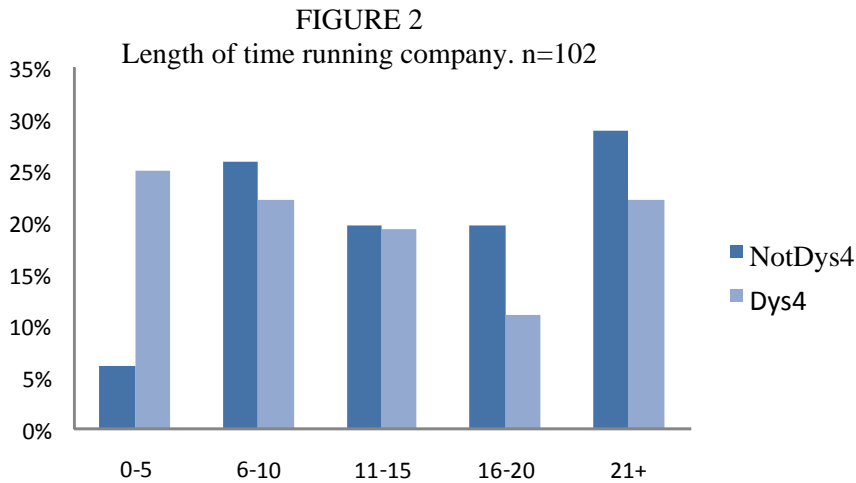


A clear pattern emerged where dyslexic entrepreneurs were more likely to have more staff than non-dyslexic entrepreneurs. This was found to be statistically significant at the 95% confidence level. This trend weakens with the group split by Dys6 and Dys8, possibly due to small sample size.

The corporate sample was too small to see if it had a significant effect, as only three corporate managers were dyslexic. It would be useful to explore this further with a bigger sample size to determine if it is an affect found amongst dyslexic managers or just entrepreneurs, or reflecting another factor, such as type of industry.

	Entrepreneurs		
	Not Dys4	Dys4	Total
0-10	28	5	33
	44.4%	13.9%	33.3%
11-20	13	13	26
	20.6%	36.1%	26.3%
21-30	6	5	11
	9.5%	13.9%	11.1%
31-40	5	3	8
	7.9%	8.3%	8.1%
41+	11	10	21
	17.5%	27.8%	21.2%
Total	63	36	99

Number of Years Running Company

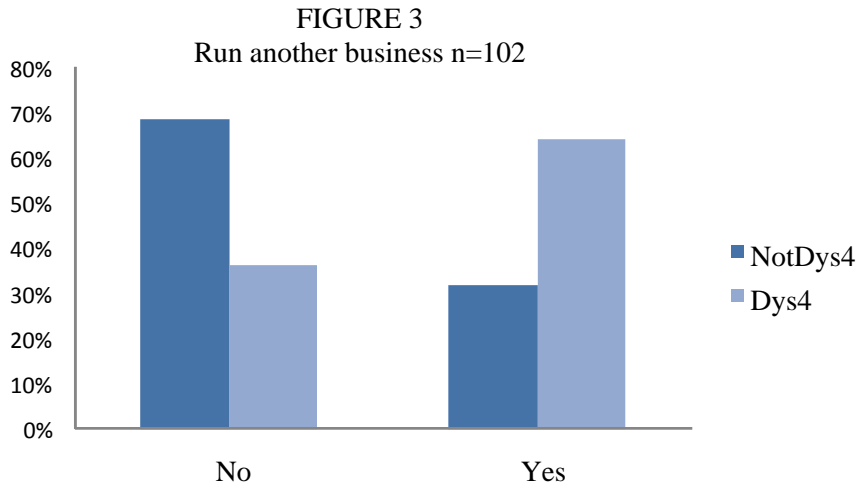


Non-dyslexic entrepreneurs were more likely to be running a company for a longer period of time than dyslexic entrepreneurs. This was found to be statistically significant at the 90% confidence level ($p=.056$). When dyslexia was identified using 6 criteria, the effect was found to be significant at the 99% confidence level. This finding sits in contrast with the number of business held by dyslexic and non-dyslexic entrepreneurs.

In order to see the impact of the control group, a similar variable, time held in position, was analysed. The same effect was not found amongst entrepreneurs or corporate managers.

	Not Dys4	Dys4	Total
0-5	4	9	13
	6.1%	25.0%	12.7%
6-10	17	8	25
	25.8%	22.2%	24.5%
11-15	13	7	20
	19.7%	19.4%	19.6%
16-20	13	4	17
	19.7%	11.1%	16.7%
21+	19	8	27
	28.8%	22.2%	26.5%
Total	66	36	102

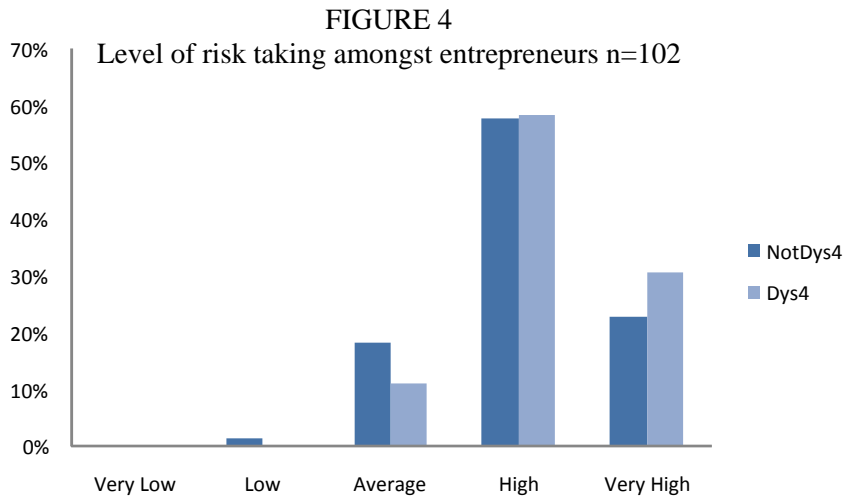
Running More Than One Business



Although dyslexic entrepreneurs were less likely to have run their business for longer periods of time, they were more likely to have more than one business. This was found to be statistically significant at the 99% confidence level. When dyslexia was identified using 6 criteria, the effect was found to be significant at the 95% confidence level.

	Entrepreneurs		
	Not Dys4	Dys4	Total
No other business	45	13	58
	68.2%	36.1%	56.9%
Other Business	21	23	44
	31.8%	63.9%	43.1%
Total	66	36	102

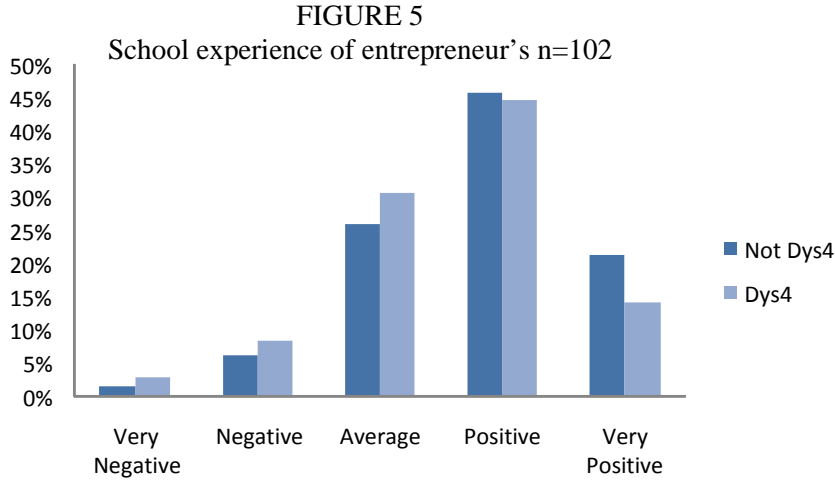
Risk Taking



All entrepreneurs were likely to say they had a high level of risk taking. Those who were dyslexic were slightly more likely to rate their risk taking as high as non-dyslexic entrepreneurs, however this was not found to be statistically significant. However, with corporate managers included, this trend between dyslexic and non-dyslexic people is strengthened, and becomes significant at the 95% confidence level. When asked if their risk taking had decreased over time, there were no patterns found between dyslexic and non-dyslexics.

	Entrepreneurs			Corporate Managers		
	Not Dys4	Dys4	Total	Not Dys4	Dys4	Total
Very Low	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Low	1	0	1	2	0	2
	1.5%	0.0%	1.0%	5.9%	0.0%	5.4%
Average	12	4	16	11	0	11
	18.2%	11.1%	15.7%	32.4%	0.0%	29.7%
High	38	21	59	18	3	21
	57.6%	58.3%	57.8%	52.9%	100.0%	56.8%
Very High	15	11	26	3	0	3
	22.7%	30.6%	25.5%	8.8%	0.0%	8.1%
Total	66	36	102	34	3	37

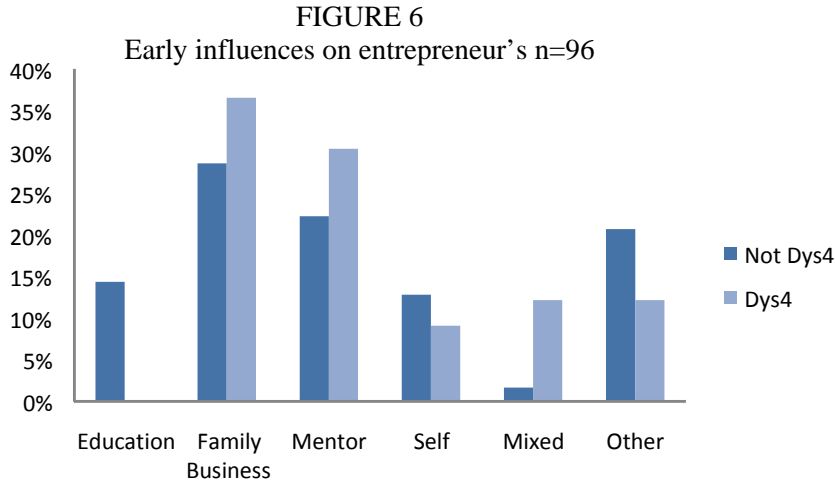
School Experience



There was a small trend where dyslexics were less likely to have a positive school experience; however this was slight and not found to be statistically significant. The trend held when the control group were added into the sample, however remained non significant.

	Entrepreneurs			Corporate Managers		
	Not Dys4	Dys4	Total	Not Dys4	Dys4	Total
Very Negative	1	1	2	0	0	0
	1.5%	2.8%	2.0%	0.0%	0.0%	0.0%
Negative	4	3	7	3	0	3
	6.1%	8.3%	6.9%	8.8%	0.0%	8.1%
Average	17	11	28	4	0	4
	25.8%	30.6%	27.5%	11.8%	0.0%	10.8%
Positive	30	16	46	16	1	17
	45.5%	44.4%	45.1%	47.1%	33.3%	45.9%
Very Positive	14	5	19	11	2	13
	21.2%	13.9%	18.6%	32.4%	66.7%	35.1%
Total	66	36	102	34	3	37

Early Years



Having a business in the family, or a mentor, were the most common influences for entrepreneurs. Many respondents chose to give a different influence to those provided in the multiple choices. To assist with analysis two further groups were created from these other responses; Self motivation and a mix of influences. Other specified influences were to do with specific events or general comments.

Non-dyslexic entrepreneurs are more likely to be influenced by their education; indeed no dyslexic entrepreneurs identified education as an influence unless it was amongst a mix of influences. Dyslexic entrepreneurs were more likely to be influenced by a mentor (often in the family) or family business than non-dyslexic entrepreneurs. Numbers were too small to meaningfully analyse Dyslexia6 and Dyslexia8.

Education was also found to be more likely to influence non-dyslexic corporate managers, however due to the range of options available, the number responses per category was too small to analyse.

	Entrepreneurs			Corporate Managers		
	Not Dys4	Dys4	Total	Not Dys4	Dys4	Total
Education	9	0	9	15	0	15
	14.3%	0.0%	9.4%	45.5%	0.0%	41.7%
Family Business	18	12	30	8	1	9
	28.6%	36.4%	31.3%	24.2%	33.3%	25.0%
Mentor	14	10	24	6	2	8
	22.2%	30.3%	25.0%	18.2%	66.7%	22.2%
Self	8	3	11	2	0	2
	12.7%	9.1%	11.5%	6.1%	0.0%	5.6%
Mixed	1	4	5	0	0	0
	1.6%	12.1%	5.2%	0.0%	0.0%	0.0%
Other	13	4	17	2	0	2
	20.6%	12.1%	17.7%	6.1%	0.0%	5.6%
Total	63	33	96	33	3	36

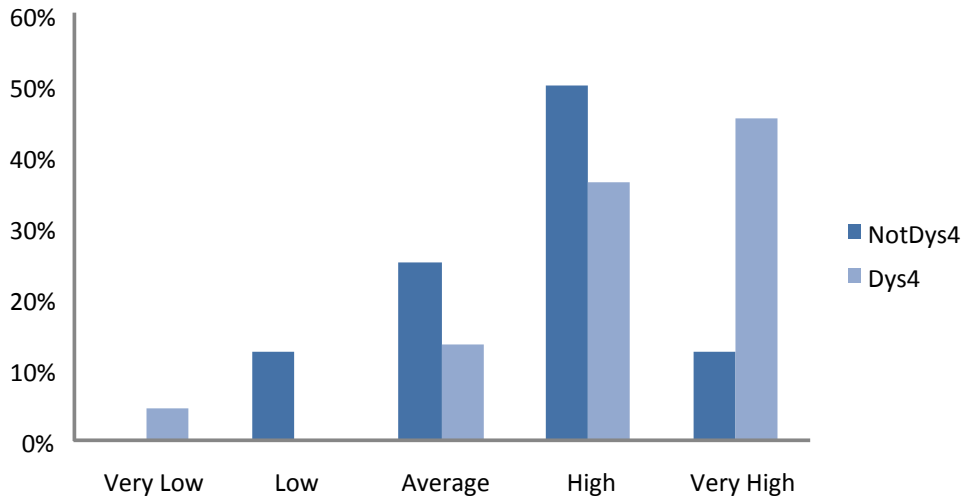
Adversity

80% of all respondents identified themselves as having faced adversity in their childhood. This proportion did not vary between different groups (e.g. Entrepreneurs 80%, Corporate Managers 81%).

The Follow up Questionnaire (at the pilot stage sent to 36 of the original group)

Communication Skills

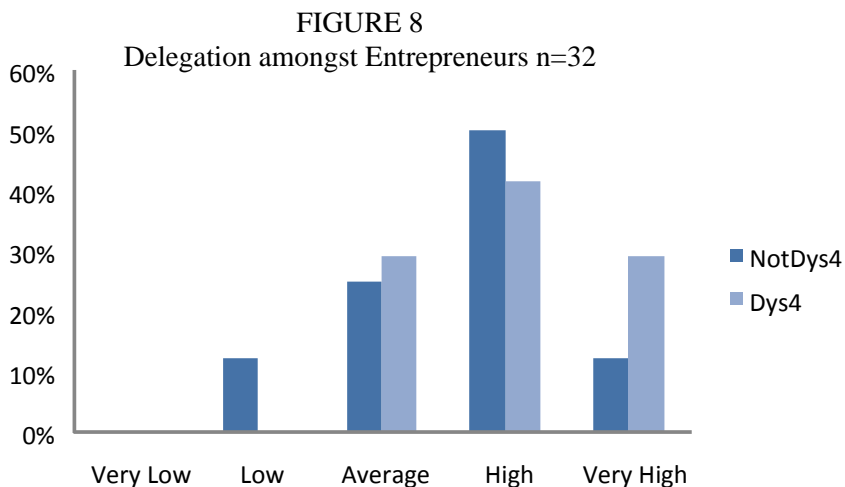
FIGURE 7
Level of communication skills amongst entrepreneurs n=30



This question had 34 responses. Nearly all respondents rated their communication skills as average or good. Dyslexic entrepreneurs were more likely to say they were very good than non-dyslexic entrepreneurs, a pattern which remained (although slightly weaker) with the control group included. With a larger sample, this effect could be statistically assessed.

	Entrepreneurs			Corporate Managers		
	Not Dys4	Dys4	Total	Not Dys4	Dys4	Total
Very Low	0	1	1	0	0	0
	0.0%	4.5%	3.3%	0.0%	0.0%	0.0%
Low	1	0	1	0	0	0
	12.5%	0.0%	3.3%	0.0%	0.0%	0.0%
Average	2	3	5	0	0	0
	25.0%	13.6%	16.7%	0.0%	0.0%	0.0%
High	4	8	12	2	1	3
	50.0%	36.4%	40.0%	66.7%	100.0%	75.0%
Very High	1	10	11	1	0	1
	12.5%	45.5%	36.7%	33.3%	0.0%	25.0%
Total	8	22	30	3	1	4

Delegation



Dyslexic people were more likely to say they were very good at delegation than non-dyslexic, a pattern which remained with the control group included (marginally stronger). With a larger sample, this effect could be statistically assessed.

	Entrepreneurs			Corporate Managers		
	Not Dys4	Dys4	Total	Not Dys4	Dys4	Total
Very Low	0	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Low	1	0	1	1	0	1
	12.5%	0.0%	3.1%	33.3%	0.0%	25.0%
Average	2	7	9	2	0	2
	25.0%	29.2%	28.1%	66.7%	0.0%	50.0%
High	4	10	14	0	1	1
	50.0%	41.7%	43.8%	0.0%	100.0%	25.0%
Very High	1	7	8	0	0	0
	12.5%	29.2%	25.0%	0.0%	0.0%	0.0%
Total	8	24	32	3	1	4

Visualisation of the Future Direction of the Business, Problem Solving Ability, Spatial Awareness and attention to detail

Whilst the dyslexics in the follow up survey scored higher than the non-dyslexics on creativity and spatial vision the numbers in the pilot are too small for a pattern to emerge at this stage.

Semi-Structured Questions with Individual Responses

A number of questions asked for individual responses these included questions about the success of the venture but also about school experience. In answer to the question: 'What are the reasons for your success?' Two words meaning the same were stressed by all candidates dyslexic or otherwise; determination and perseverance. In answer to the question about achievement whilst at school: answered in a similar way by all dyslexic respondents; comments included:

"I really enjoyed college but really struggled"

"I do not believe I achieved my full potential"

DISCUSSION OF RESULTS

35 % of US entrepreneurs in this sample have dyslexic traits, (23% report as highly dyslexic or extremely dyslexic). Less than 1% of corporate managers reported as dyslexic, this compares with a US national incidence of up 15% (See note¹: Morris 2002; Morgan & Klein 2000; International Dyslexia Association).

There is no evidence of any differences in the choice of sectors between dyslexic and non dyslexic entrepreneurs. However there were differences in the number of staff employed, the length of time running the business and the number of companies owned. There was also a difference in perceived ability to delegate. Non dyslexic entrepreneurs had run their companies for longer than those who were dyslexic. This was found to be statistically significant at the 90% confidence level ($p=.056$). When dyslexia was identified using 6 criteria, the effect was found to be significant at the 99% confidence level.

In contrast dyslexics had started and owned more ventures than non dyslexics. This was also statistically significant at the 99% confidence level.

Non dyslexic entrepreneurs may stay with their existing company longer because they are comfortable with the structure that develops as a company matures. Dyslexics find it very stressful to cope in a structured company environment and are more comfortable managing a situation in which they can control the variables so may prefer to focus their energies on the start up phase (Fitzgibbon & O'Conner 2002; Taylor & Walter 2003).

Dyslexics employed more staff, and this too was statistically significant at the 95% confidence level. The mean number of staff employed was 17 for non dyslexic and 25 for dyslexic. If the number of staff employed is taken as a measure of company size and turnover this together with evidence which suggests dyslexics have been running their companies for less time, and may have more than one company, may suggest that dyslexics are able to grow their companies more quickly.

This may also be linked to the trend found in this study that dyslexics are more able to delegate. This ability to delegate is an example of the "coping strategies" dyslexics employ to overcome their difficulties (Everatt, Steffert and Smythe, 1999). Delegation is essential for business growth, however it is a skill that may need to be learnt, many entrepreneurs find it difficult to make the transition from control to delegation (Timmons, 1999; Mazzarol, 2003) so this is a potentially interesting and finding. There could be value from an investment prospective in knowing whether the person before you is likely to be able to delegate and grow a company quickly, particularly if an early exit is required.

Attitude to risk was examined, whilst all entrepreneurs perceived themselves to have high levels of risk taking, more dyslexic entrepreneurs reported as very high on the risk taking scale. This was not significant but may have an impact on other factors such as number of ventures and number of staff employed. A larger sample size would be required to examine the relationship.

Both dyslexic and non-dyslexic entrepreneurs in this study reported the usual characteristics which you might expect entrepreneurs to possess such as vision, determination and need to achieve. However there was a trend for dyslexics to perceive themselves as being better at communication than their non dyslexic counterparts. This is not surprising because dyslexia literature suggests that dyslexics compensate for their lack of written skills by developing enhanced communication skills (Nicholson & Fawcett, 1999). Whilst dyslexic entrepreneurs reported as better at being creative and tasks involving spatial awareness the small number of respondents in the pilot follow up, means that results are only an indicative finding at this stage. However if this is the case it is also likely that dyslexics develop these skills to compensate for their deficits. Are these skills an advantage in business and should we be encouraging all entrepreneurs to develop them?

The role of a mentor was identified as being a key factor in the decision to embark on an entrepreneurial career for the dyslexic as was the influence of a family business. Education was considered the most important influence on the career decision of those entrepreneurs who are not dyslexic and on corporate managers. Does this suggest that those dyslexics who had a mentor had gone on to succeed? Morris (2002) discusses the role of mentoring: "It was the kind of coaching that proved crucial to nearly everybody we talked to: mentors who took a genuine interest, parents who refused to give up, tutors who didn't even know what dyslexia was".

A UK study (East Mentoring Forum, 2007) found that 53% of the prison population were dyslexic and pointed to the role of the mentor and intervention as critical. Further more Morgan and Klein (2000) point out that: "Studies from England, the USA and Sweden all suggest that between 30 and 52 percent of the prison population in all three countries may be dyslexic, depending on how narrowly dyslexia is defined. These figures are a shocking contrast to the accepted estimates of the general population who are believed to be dyslexic". They also question why large numbers of dyslexic individuals choose the socially unacceptable route of crime while others operate within expected social mores. The answer to this question may at least partially revolve around the 'someone to believe in me' factor". This brings us to an issue which whilst not central to this paper is about the paramount importance of early intervention and support, including mentoring.

The family business was a key influence for all entrepreneurs when it came to choosing whether to be employed or become an entrepreneur. The role of the mentor (often the father) seems to be the key influencing factor for dyslexic entrepreneurs. It is very possible that the fathers of the dyslexics in this study (who were successfully running family businesses) were also dyslexic (it is hereditary) so proved very powerful role models.

Entrepreneurs had enjoyed their school experience but felt they had underachieved. As such a large proportion of entrepreneurs are dyslexic we should consider whether we are failing those who may have the potential to be innovative and create new ventures? Are we trying to

teach entrepreneurs to grow their companies using the same teaching methods that have already failed them? Would mentoring be a more effective method?

LIMITS OF RESEARCH

The number of respondents in the initial study provides a clear indication that there is a significantly higher incidence of dyslexia in the entrepreneurs than in similar successful corporate managers. The incidence is also much higher than the incidence in the general US population. The follow up study is at this stage a pilot so is only indicative. There are also some interesting trends that as yet are not “significant” and this is almost certainly the result of the sample size.

CONCLUSION

The results point to some interesting findings. There is a much higher incidence of dyslexia in entrepreneurs than in the normal corporate management population. The incidence of dyslexia in entrepreneurs is also much higher than the incidence in the US population in general. The research findings suggest that dyslexic entrepreneurs may be more comfortable in a start up or serial entrepreneur role so that they are able to do things their own way. They seem to grow their companies more quickly than non dyslexics and this may be a consequence of their perceived ability to delegate. This ability to delegate is possibly a compensatory strategy. This study also found the role of the mentor to be a crucial factor in dyslexics succeeding and becoming entrepreneurs. The role of the mentor in the success of the dyslexic is an area which may be of pivotal importance and whilst not central to this study points to the need for early identification; intervention and remediation for all. An issue which is not discussed in detail in this study but is also significant is the implication for how we teach entrepreneurship. If many potential entrepreneurs are dyslexic are we using the best techniques to help them create their new ventures?

Endnotes: Note 1: In the US it seems there is no definitive figure for the incidence of dyslexia because it is often grouped with other learning disabilities, the figure of 15% refers to the group: learning disabled.

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