A Critical Analysis of Different Research Approaches used in the study of Networks in Entrepreneurship with Reference to selected Research Papers

Dr. Rajesh N. Pahurkar
Assistant Professor
Department of Management Sciences, University of Pune, Pune 411007

ABSTRACT:
There are different methods of conducting the research studies. The most popular methods are survey and interview method with the help of structured questionnaire, the experimental research based on participation and observation and case study method which is more analytical and observatory. All these three methods use different technique for data collation. The quality and quantity of the data collected through all these three methods is also different. The researcher can use any one of these methods for research on any topic. Here an attempt is made to analyze the different approaches used in each method to study the same topic. The central theme of all three selected research paper is on “Network in Entrepreneurship”. Having common theme and different methods of conducting the research is analyzed critically.

Keywords – Analysis, Case study, Experimental, Survey, Interview,

1. INTRODUCTION
The topic selected for critical analysis is “Network in Entrepreneurship”. Three selected research papers as listed below are reviewed critically to study the approaches adopted to carry out the research.

1. Network Support and the Success of Newly Founded Businesses by Josef Brüderl and Peter Preisendorfer.
2. Size Really Matters—New Insights for Start-ups’ Survival by Ornit Raz, Peter A. Gloor.
3. Networks in entrepreneurship: the case of high-technology firms by Tom Elfring & Willem Hulsink.

All the above three research papers are focusing on the theme of “network approach to entrepreneurship”. Each paper has used different approach/method/technique of data collection to study the same topic. All these research paper speaks about the role or influence of network resources, networking activities and network support on business startup and its survival over period of time.

2. COMPARISON
The contents of each research paper are analyzed and the style of research is compared. The overall structure and flow of contents are critically evaluated and compared.

2.1 THE ANALYSIS OF THE FIRST RESEARCH PAPER
The first research paper used questionnaire and survey method to collect the data.

1. Network Support and the Success of Newly Founded Businesses by Josef Brüderl and Peter
This research paper is based on the study of 1,700 new business ventures in Upper Bavaria (Germany). The article gives an empirical test of the network success hypothesis.

Many studies about entrepreneurship and social networks mainly follow a qualitative approach, all these studies/research are based on small samples, and they ignore important variables that should be controlled for by appropriate statistical procedures.

It presents the results of empirical analyses intending to test hypotheses of the network approach to entrepreneurship. The paper has an adequate design of the study, a large sample and elaborated statistical techniques are the main advantages of analyses.

The researchers have explained the plan of paper very clearly. The paper is divided into four sections. Section 1 has introduced about the topic, the definition and planning of research paper. Section 2 has explained the research concept based on literature review. The author used some number of research papers previously published on related topic. Most of the papers under literature review are of single researcher (Aldrich) hence the opinions formed based on literature review may not be real representative of other researcher in the same area.

Also the author did not explain much in detail about the relevance of other published papers with the research topic. It seems very superficial relevance of literature review.

The explanation given by the author about hypothesis formation and its relevance with the topic is also not explained lucidly.

Section 3 explains about sample design, sample size, data, variables, and methods. The data used here for research are the part of the “Munich Founder Study”. This study is based on interviews, conducted at the beginning of 1990, with a random sample of 1,849 business founders. The founders interviewed had registered for a new business in 1985/86 in Munich and Upper Bavaria (Germany) at the local Chamber of Commerce.

Based on the total population of more than 30,000 business registrations in 1985/86 in Munich and Upper Bavaria, a stratified random sample of about 6,000 businesses was drawn. In the first step of the study, researchers had to update the addresses of the 6,000 founders of the sample. The addresses that the Chamber of Commerce provided to them had the status of 1985/86 when the founders registered for their businesses. The next step concerned the problem to motivate the founders to participate in the study. As already mentioned above, 1,849 interviews could finally be conducted. Based on the 6,000 addresses of the sample, this means a response rate of 31% – at first glance a moderate result. However, not all business registrations become “real businesses”. For nearly 20% of total sample of 6,000 founders, the researchers could observe that there was no economic activity at all. Therefore, the net response rate is about 39%. The following analyses are based on 1,710 firms because the researchers omitted cases founded before 1985 and after 1986. 32% of these founders had given up their business until the date of the survey in the first months of 1990.

This shows that the researcher followed logical and very rational approach in sample design.

The data collection of the research is through interview technique with structured questionnaire. The interview duration was approximately one hour for each respondent. The interview was divided into two parts the first part was on the start-up characteristics of the firm and second part was on individual attributes and networking activities of the founder.

The variables are clearly defined while the conduct of this study and each variable is measured on five
pint scale for its effect on business startup.

The researcher broadly categorized the Network support variables into following categories:

1. Support from strong ties
2. Support from weak ties
3. Active help from spouse
4. Emotional support from spouse
5. Success variables

Researcher defined all the above mentioned categories. Each of the above variable categories has the number of respective variables. All those variables are measured on five point scale to show their effect.

Section 4 Statistical analysis and hypothesis testing
The major three hypothesis were formed for the conduct of this study:

Since all the support variables are indices ranging from 1 to 5, hence simple OLS regressions is used to investigate the effects of variables to test the hypothesis.

The tables are formed to find out the coefficient of regression to test the following hypothesis based on the variables consider under each hypotheses.

The following hypothesis were tested:

1. The network success hypothesis stating that support from the personal network of a founder improves survival and growth of newly established businesses was valid in bivariate and multivariate analysis.
2. Support from strong ties seems to be more important than support from weak ties.
3. The network compensation hypothesis stating that entrepreneurs compensate shortfalls of human and financial capital by resorting to network support, did not find confirmation.

Section 5 is on conclusions of the research study
This section explained about the hypothesis validation and overall finding of the research paper.

Limitations of the research paper:
This research paper has following limitations:

1. This paper doesn’t measure the strength of organizational networks because the researcher didn’t gathered information on these ties.
2. It said nothing about the network founding hypothesis. For this, one would need detailed information on the founding process.
3. The data consider for this study are confined to one German region and this obviously raises the question of the generalizability of the results.

Further area of research based on this research:
Same kind of research can be carried out for larger geographical spread to apply the results of the study universally.

2.2 THE ANALYSIS OF SECOND RESEARCH PAPER
This research is carried out for seven years to study the effect of networks on survival of startups. Dur-
ing the period of this research the effect of networks on startups to withstand in all type of economic environment is examined. This is an experimental kind of research which is carried out at Israeli software firms.

‘Size Really Matters—New Insights for Start-ups’ Survival by Ornit Raz, Peter A. Gloor

This paper is based on findings of a research study that took place among Israeli software firms between 1997 and 2000. In December 2004, the researchers compared this data with the survival rate of the firms.

The researchers have explained the plan of research. They have given different headings to each section of the research paper.

The first section is on an introduction about the topic and the study. The researchers used some of the previously published work related to the topic. As this research is carried out for software industry but the author of this paper used various other research papers of biotech and hospital industry as reference. It shows irrelevant referencing of author. The researcher should have use research papers which are related with the software startups at different places during the period of research.

The second section is on software start-ups in Israel. It gives brief idea about the software industry in Israel.

In particular, the researchers collected communication data of software start-ups in Israel in 1998, right before the e-business bubble burst. The researchers then correlated this communication network of start-ups with survival after the e-business implosion, measured in 2004.

Hence this is an experiment carried out for almost seven years to study the effect of networks in survival of startup over a period of time. During this experiment there had been many global economics changes which had shocked the software industry many times. This research measured the impact of all economic shocks on the survival of these startups.

This setting offers a unique opportunity to investigate the influence of informal networking in a closed environment. Israel provides an ideal laboratory setting for this experimental research work.

This research is carried out in Israeli software start-ups during the dot-com economic growth. For the conduct of this research only software companies are considered as respondents. The concept of research is same as the role of network in survival of the venture. This paper presents new evidence regarding a firm’s probability for survival, based on the network structure of the firm’s managers.

The researcher has formulated the hypothesis based on various other research conducted previously.

It is found that the researcher of this paper is biased by other research paper because he is repeating the same statement that startups can survives when they have good network outside. According to the researcher the better connected through informal networks with their outside peers the managers of a software start-up company are, the higher the probability for the company’s survival in the presence of an external shock.

The researcher found it difficult to collect the data over such longer period of time.

The third section explains about the method used for the conduct of this study.

For this research, executives of 100 software start-up companies in Israel had been asked to indicate the strength of their informal relationship with managers at other software start-ups. A single executive per firm participated in the research.

The questionnaire contained background questions about the characteristics of the interviewed person and characteristics of the firm.

After two months, researcher followed up with another questionnaire to the participant in the first in-
terview that included a matrix list with all the names of the managers of the different software start-ups surveyed previously.

The analysis of this questionnaire provided information on the position of each company in the social network of company executives and on the relationships among the network members, such as existing cliques. In the survey, ties between companies were counted only once. Of the 100 firms initially investigated in 1999, in December 2004, 58 still existed as either independent entities or had been acquired by others, while 42 had failed. The researchers used many channels to verify the data, such as formal documentation, Internet presence, and software peer review, hence researcher found that the 42 firms no longer exist actually failed.

The fourth section is on Statistical analysis of the data. The researcher categorized the variables and studied the effect on survival of the firms. The researcher also used statistical formula to calculate the number of ties of each firm to design the network of the organization. The researcher found out the correlation between strength of network and survival of the startups.

The researcher shown the possible variables that may correlate with survival in tabular form to prove that the firm’s informal communication networks—the weak ties—play an important role in the probability of surviving. This was the singe hypothesis the researcher had during this research.

The last section is on results and conclusion Based on statistical analysis of the data the researcher presented the effect of network on startups activity.

**Limitation of the study –**

The research didn’t deal with the factors leading to good or bad networks.

**2.3 THE ANALYSIS OF THE THIRD RESEARCH PAPER**

Networks in entrepreneurship: the case of high-technology firms by Tom Elfring & Willem Hulsink.

This research paper is based on case study method. The authors have considered three technology companies for the research and study of the network effect on the survival or performance of these start-ups.

Section 1 is on Introduction

In this section author has included large number of research papers for introducing the topic. They explained the research concept very nicely with the help of previous research papers. The researcher used very good collection of previously researched papers.

The three cases considered for this study, one of the three case companies is successful, one went bankrupt and failed, and the performance of the third one is still unclear but it manages to survive. All these three companies are high tech type.

Section 2 is on theory of networking in entrepreneur

In this section authors have very nicely elaborated the network concept with all its details. The researchers have included very good collection of research papers on the related topic. The authors have very appropriately selected the parameters for the research work. They considered three major parameters for their study based on previous research. According to the author networks plays important role in controlling Opportunities, Resources and Legitimacy. Author explained the relevance of these three parameters in detail.

Section 3 is on theory of high-tech start-ups and early growth

In this section author explained the phase of startup and network use in growth.

Section 4 is on methodology of the research and analysis of cases
Author explained about the methodology of the research. It explain that this is the explorative research based on case study and objective of this is not to test particular hypotheses but to contribute to theory building in the field of high-tech entrepreneurship and network development.

**Sample design -**
The sample selected for this research is three numbers of high tech companies. Two are from ICT area and one is from biotech area.

The main selection criterions were representation of firms from high-tech industries and start-ups with a traceable life course, with data and details available about their formation, their product/service offerings, the personal traits of the entrepreneurs involved, and their competitive and institutional environment.

**Data collection tools-**
The collection of data was conducted through interviews and discussions with founders and senior managers (two per company), other interviews with the firm’s key people and company reports in newspapers and trade journals, and analysis of company briefings and industry data. These multiple data sources were used to be able to check the validity of the data.

**Analysis of the cases-**
In this section author describe the characteristics of the three high-tech start-ups, their founders, and their early growth trajectory. The author compared and analyzed the three case studies more systematically.

Section 5 is on conclusion from the research.

In this section author examined various propositions based on the above analysis of cases. The author very critically proposed the importance of network in various phases and various areas of entrepreneurship.

**Limitation of the study**
In this study the three cases considered cannot be a representative of whole universe. It means whatever are the findings cannot be applicable to all other companies.

**3. CONCLUSIONS**
All the three research approaches (Methods/Techniques) have their own strength and weakness as mentioned below -

The first paper uses questionnaire and survey method to collect the data. In this method a large sample can be selected for the study. Hence the results obtained through this type of research are applicable over large population. In this paper the researchers collected the data from huge sample size i.e. 1,710 firms. Hence the results obtained though it can be applicable for larger section of the universe and there are less chances of variability in outcomes. The data collected through this research is very voluminous and require careful handling. All researchers must be aware about the appropriate statistical tools to get the accurate result. The accuracy of the data and result is depending upon the skills of interviewer who got filled the questionnaires from the respondents.

The second paper is based on experimental kind of research. In this research a researcher observed the effect of various external and internal factors and records the behavior of various network parameters. In this research the researcher conduct the experiment over seven years and collected the data before and after the dot com burst. The sample size considered for the study is also large (appropriate). The
major hurdle for this kind of research is long duration of time. The participations of the respondents into the experiment are also very impotent for the success of the research.

The third research paper is based on case study method. In this paper three cases are selected based on predetermined criteria’s. This is comparatively simple method of research because the researcher is confining to very small sample sizes. The strength of this research is that the researcher can give appropriate treatment to the research work. It’s more personalized approach and it is possible to collect very minute details about the respondents. The accuracy of the data collection is more, though the sample size is very small. But the outcome cannot be applicable for the larger section of the universe because very little number of respondents cannot be a real representative of the whole universe. This research paper is having too much theory in it (case study research method - very Lengthy)

All the research is carried out at specific places hence there is question of applicability of their results universally.

It is harder to find out data in experimental research because of the longer duration. The data may become absolute till the final outcome of the research.

The first research paper is based on survey of all type of industries. This paper is not differentiating high tech and low tech companies while collecting the data. Hence the study is more general and having broader perspective. The outcome of this study cannot be applicable to any specific type of industry like Ex. ICT and Biotech.

4. DISCUSSION

All the three research paper can be discussed together based on following points which leads to the above mentioned conclusions.

Introduction –

All three papers have introduction well around the topic of research. Each paper introduced the topic very explicitly.

The introduction part in all three papers is almost same, though the researchers used different research papers in their introduction part.

Literature review –

All three research papers referred previously published work in the same area of research.

In the first paper most of the papers under literature review are of single researcher (Aldrich) hence the opinions formed based on literature review may not be real representative of other researcher in the same area.

In the second paper the author used various other research papers of biotech and hospital industry as reference. It was irrelevant from software industry point of view.

Whereas, the third research paper used very nice collection of previously researched papers in introduction and literature review. All the research paper used are very well related with topic of the paper.

Sample design and sample size –

All three papers have their own criteria for sample design. The size of the samples varies in all three papers. The first two papers have larger number of respondents and the third paper have only three respondents.

The first paper consider all type of industry, the second paper consider only the software companies and the third paper consider two type of sector ICT and Biotech.
In second research paper i.e. experimental research – sample considered is homogenous (only considered software startups) hence it is comparatively more focused type of research.

**Analysis and results –**

In all three research data is collected through survey and interview by using structured questionnaire to study the effects of various parameters.

The collected data is analyzed by using statistical tool in first two research paper.

The third paper based on case study method is more of descriptive type. It doesn’t use any statistical application to analyze the data.

**Hypothesis consider and validation –**

The first two research papers have relevant hypothesis formulated based on literature review and experience of the researchers in the field. The researcher used regressions and correlations to test the hypothesis.

The third research paper on case study is having having propositions which are validated based on theoretical explanations.

**Conclusions –**

All three papers have explained the appropriate conclusions based on the research output. All three research paper have almost same kind of conclusions. All researchers found that network support is essential for the survival of the startup.

**Referencing and appendixes –**

All three research papers are having long list of reference research papers which are related with the topic.

The only paper which is on case study methods has attached additional information of the companies in appendix. The first two research paper based on survey and experiment methods don’t have any appendix at the end of paper.

**5. FURTHER AREA OF RESEARCH BASED ON POSSIBLE RESEARCH GAP -**

After analyzing and evaluating all three research papers it provides future research direction. There are some of the gap areas which needs to be researched as listed below-

1. A focused research can be carried out on - Network effects on technology companies and nontechnology companies.
2. The study of the factors leading to good or bad networks.
3. The sector or industry specific case studies can be created based on research.

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