

Study of Self-Serving Biases in Pakistan Software Industry

Faisal Shafique Butt¹, Naveed Ahmad Qureshi², Dr. Wasif Nisar¹

¹Faculty of Computer Science, COMSATS Institute of Information Technology, WahCantt, Pakistan

²Department of Computer Science, COMSATS Institute of Information Technology, WahCantt, Pakistan

ABSTRACT

In this paper, the results of survey, conducted to study the self-serving bias in the teams working on the different software projects in the Pakistan software houses, are reported. The survey was conducted through questionnaires and interviews among multiple software houses in the Pakistan to study the gap between a person's own perception about his performance towards the project and the perception of the others towards his contribution. According to the results it is clear that there is statistically a huge difference between a person's own perception about his contribution and the contribution that was perceived by his team mates and this gap can act as a source of conflict or other psychological problems among the teammates and in the long run, these problems act as a hindrance towards achievements of the team goals. This paper highlights this difference and its implications for the proper working of the development teams.

KEYWORDS: self-serving bias, software, project, perception gap, conflict, software house.

1. INTRODUCTION

In this paper we've observed the teams from the Pakistan Software Houses from an individual member's perspective. Determining that how the team members look at their own involvement taken as a whole effort towards the project and how those efforts are noticed by the other team members. It is supposed that the difference in the perception may cause inconvenience among the team members and it may act as a source of anger and conflict type interpersonal problems. These interpersonal problems may affect the objectives of the team. It is a psychological effect that people attribute their success to their personal actions but do not tend to take the responsibility of the failures [1-3] because they are usually very optimistic while predicting the outcomes as they expect to perform exceptionally well rather than failing to do the job assigned to them or not doing it well [4]. So each team member perceives himself to be more responsible for the success of the project than the others [5]. It is a very interesting debate that is there any significant perception gap in the other scenarios.

It is already known that according to the literature if a team leader keeps the team members motivated by making them realize the importance of their contribution towards the project and making sure that the benefits they are getting are greater than or equal to the benefits that are provided to them then he can increase the productivity of the team [6]. Another study revealed that the well-defined tasks assignments at the end act as a cause of unfairness [7]. All of these aspects can be said to be related to the difference in the perception that we have reported through this survey. A similar kind of survey was conducted in the setting of a semester project teams of graduating students and that survey also showed the same pattern of results [8]. It is also known that the self-biasness may differ in the different cultural environments and working conditions [9]. This gap in the perception can be because of the factor that a person tends to be biased towards him and it is bound to be present in the situation where close interpersonal relationships are present and the person needs to present himself as a better person than others [10][3]. The personal biases are expected to occur more often in the situations involving high level of uncertainty and ambiguity; software development teams often have this problem. The task of the team is the implementation of the software project and the software projects are bound to be intangible [11][12]. Due to this factor it is difficult for the team members to access and measure most of the aspects of the project and they only know the difficulties and challenges that they had to face themselves and the difficulties and challenges of others are completely unknown to them. Self-serving bias is customized by a variety of factors like self-esteem, and the wide-spread self-serving bias is a result of multiple threats to the person's self-perception [10].

The goal of this paper was to determine that whether there is any significant difference between a person's own perception about his contribution towards the project and the contribution that was perceived by his team mates. There has been some research work in this field but that was restricted to a class of graduating students working under the same working environment or the studies were conducted among the individuals of developed countries like USA and Japan but we have included different software houses from Pakistan, having different working

*Corresponding Author: Faisal Shafique Butt, Faculty of Computer Science, COMSATS Institute of Information Technology, WahCantt, Pakistan.

conditions and environment. The working environment of a class or a developed country having all the resources is much different than the software houses of a developing country like Pakistan, so our this paper increases the scope of the study to the multiple software houses in the Pakistan Software Industry to get to a diverse population sample for more reliable and authentic findings.

The scientific contributions of this paper are

1. Check the presence of any difference between a person's own perception about his contribution towards the project and the contribution that was perceived by his team mates.
2. Check whether the difference is significant or not.

The remainder of the paper was organized as follows: In Section 2, we have summarized the proposed work and the research methodology. In Section 3, we have summarized the description of the results of the survey. In Section 4, we have elaborated the conclusions and possibilities of the work that can be done in the future.

2. PROPOSED WORK

After a comprehensive study of already present research work and literature reviews, problem was identified and hypotheses were developed for the problem. To test the hypotheses, observation was made through a survey of multiple software development teams from the Pakistan software Houses. For this survey, 10 different teams were selected as a sample from different software houses of Pakistan. Each team consisted of 4 to 6 members. The whole project was divided into sub-tasks and those sub-tasks were assigned to different Team members at the same level but in case of some teams, multiple members had to perform their task with coordination of other members. The members were asked to fill the questionnaires and to answer the questions asked in the interviews after the delivery of the projects. This survey was conducted specifically for the purpose of rating so that they may analyze and rate the contribution that they have made towards the project and the contribution of other individuals. After the survey, collected data was evaluated using the Paired Sample T-Test (with repeated measures). The conclusion of the analysis has demonstrated that majority of the members judged their individual project contribution higher than that of their teammates.

2.1. Hypothesis

2.1.1. Hypothesis-1

H_0 = Person's own perception of his contribution is equal to his contribution perceived by other teammates.

H_1 = Person's own perception of his contribution is not equal to his contribution perceived by other teammates.

2.1.2. Hypothesis-2

H_0 = Person's own rating of his contribution is equal to the rating given by other teammates.

H_1 = Person's own rating of his contribution is not equal to the rating given by other teammates.

2.1.3 Hypothesis Explanation

We have transformed our problem into two hypotheses and both hypotheses are used to find the solution. The Hypothesis-1 is based on the assumption that there is no difference in a person's own contribution towards his contribution and the contribution that was perceived by his other teammates. And the Hypothesis-2 is based on the assumption that a person's own rating of his contribution is equal to the rating that was given by his other teammates.

2.2. Data Collected

For this Survey Paper, multiple teams were selected from different software houses of Pakistan. The teams consisted of four to six members. And this survey was conducted on the basis of the recent projects that those teams had done. These projects consisted of all the standard activities of development of a project [13] ranging from requirement gathering to completing the documentation after completion of the project. At the completion of the project the teams had to provide two Deliverables: A working project and complete Documentation. The size of the projects ranged from 5000 to 10000 lines of code approximately.

The role of each of the team member was to be decided by the team leader. In some of the teams the members were explicitly told about their exact job in the process and in some of the projects the member performed the tasks with coordination of other members.

Two methodologies were adopted to conduct the survey: conducting face to face interviews and filling out the questionnaires.

The members were asked to participate in the survey after the delivery of the project. The responses of the survey were kept private and were not disclosed to anyone. Survey was conducted among the 10 different teams from different software houses of Pakistan and a total of 47 persons participated in this survey.

Multiple measuring scales were used to access the contribution of each team member. These were: measuring the percentage of the total effort exerted by each of the individual in the team, and the answered were to be ranged from 0 to 100 percent. The aggregate of all the percentages of an individual questionnaire was expected to be 100 percent. The other one was to observe how important the contribution of each of the team member towards the project was. The contribution of each team member was graded (the grade is an ordinal variable because it is a Likert Scale, but it is used as a continuous variable by most researchers [14]) by his other team members. The scale between 1 and 5 was chosen with 5 representing the highest grade.

This survey can be easily copied and this methodology can be used in any other scenario.

3. RESULTS

During the analysis of the survey results, we have studied the gap between the perception of the group members towards their own contribution and the perception of the other members towards their contribution.

We have used paired sample T-Test (with repeated measures) for the evaluation of the perceived contribution and the grade. The mean of all the responses of the group members was used as the score of a member which was given by the other group members. The responses from all the 47 people who participated in the survey were accepted and were termed as correct and acceptable data.

The means of percentage of contribution and ratings for both self and others are summarized in the following table

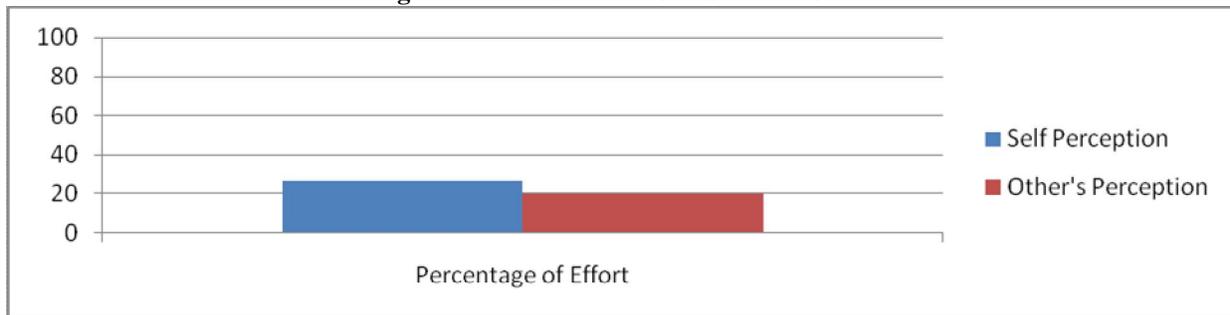
Table 1. MEAN VALUES OF SURVEY RESULTS

	Self-Assessment	Other's Assessment
Percentage for effort	26.23	19.9
Grade for Effort	4.37	3.62

3.1 Evaluation of Hypothesis-1

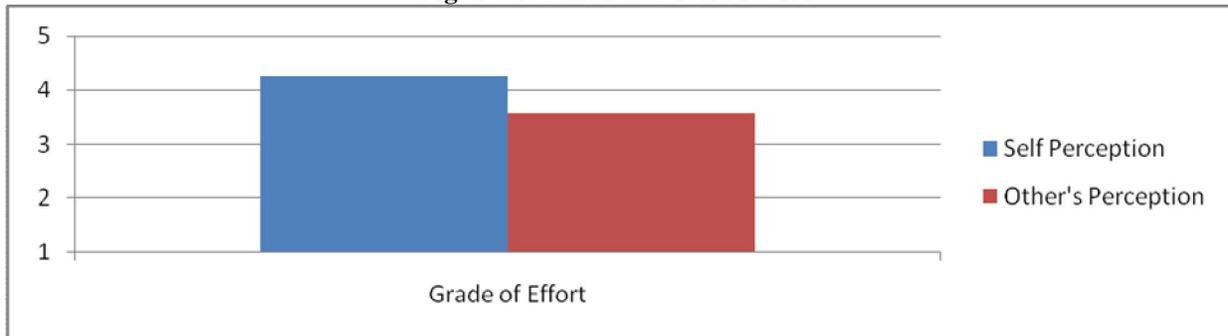
A Paired Sample T-Test proved our H_0 wrong. According to the results, the mean value of a person's perception about his own contribution towards a project was found out to be 26.23 percent while the mean value of his contribution perceived by other teammates was 19.91 percent, whereas the p-value was found out to be much less than .01. The difference between both the percentage values clearly show that teammates assume their own contribution towards the project to be greater than the perception of other teammates towards their contribution and that difference was of 6.32 percent. P-score or P-value is often used to determine the significance of the difference, and $p < 0.01$ shows that there is a significant difference between both perceptions.

Figure 1 PERCENTAGE OF EFFORT



3.1 Evaluation of Hypothesis-2

Paired Sample T-Test of the other measure (grade) proved our H_0 wrong. According to the results team members gave a grade of 4.37 to their own contribution but the other members of his teams graded that person at 3.62. P-value was found out to be .000. The difference between both the grade values clearly shows that teammates graded their own contribution towards the project to be greater than the perception of other teammates towards their contribution and that difference was of .72. P-score or P-value is often used to determine the significance of the difference, and $p < 0.01$ shows that there is a significant difference between both perceptions.

Figure 2.GRADE OF EFFORT

4. CONCLUSION AND FUTURE WORK

The presence of self-serving biases was identified as a problem in the teams from different work cultures of the world by the literature study. So we decided to study the self-serving biases present in the Pakistan Software Industry. For this purpose, a survey was conducted across the multiple software houses from Pakistan. Ten teams from different software houses were selected across Pakistan. The survey was conducted through one-to-one interviews and questionnaires, and the results were evaluated using the paired sample T-Test (using repeated measures). According to the results of the survey it is clear that there is statistically a huge difference between a person's own perception about his contribution towards the project and the contribution that was perceived by his team mates. This gap in the perception clearly shows the self-biasness in the Pakistan Software Industry and it can act as a factor to create tension between the team members and can disrupt the teamwork, because it is possible that a person may feel that he is being undervalued by the others and he is not being paid his fair share of appreciation and benefits.

The difference in the perception can prove to be a threat to the project and the team. A person and the team management need to have high interpersonal skills to face this gap and it is already observed and documented that the persons having excellent social skills is a mandatory quality of the excellent software professionals [15], and according to our opinion, good interpersonal can be helpful to reduce this gap in the perception. Furthermore it is put forward that lack of interpersonal skills in the teammates is a bigger cause of project failure than the shortage of technical skills [16] and apart from many other typical technical shortcomings, the professionals of the Pakistan software industry have basic weaknesses and one of them is poor communication and interpersonal skills [17][18]. In our opinion the management of the team including the team leader should be aware of the gap between the perceptions of the team members, and this will help them to neutralize the negative effect of this gap on the team's performance. If team management and the team members deal with the gap efficiently then they will be able to improve the performance of the team towards achieving the goals and it will also improve the interpersonal relationships inside the team.

This study was conducted with limited resources and the teams which were surveyed were small level teams working on the small level projects, this survey can be replicated in the future with different settings involving larger teams working on the bigger and diverse projects. If survey on the larger team also shows the same kind of results then it will further strengthen the authenticity of our findings. More studies can also be conducted to study the reasons of this kind of behavior of the team members and some strategy or model can be established to cope with this self-serving bias. One can also study the impact of the organizational structure and the working environment on this phenomenon.

REFERENCES

1. Miller, D.T. and M. Ross, *Self-serving biases in the attribution of causality: Fact or fiction?* Psychological bulletin, 1975. **82**(2): p. 213.
2. Rotter, J.B., *Generalized expectancies for internal versus external control of reinforcement.* Psychological monographs: General and applied, 1966. **80**(1): p. 1.

3. Brown, J.D., *Evaluations of self and others: Self-enhancement biases in social judgments*. Social Cognition, 1986. **4**(4): p. 353-376.
4. Weiner, B., *An attributional theory of achievement motivation and emotion*. Psychological review, 1985. **92**(4): p. 548.
5. Krueger, J., *Enhancement bias in descriptions of self and others*. Personality and Social Psychology Bulletin, 1998. **24**(5): p. 505-516.
6. Shepperd, J.A., *Remedying motivation and productivity loss in collective settings*. Current Directions in Psychological Science, 1995. **4**(5): p. 131-134.
7. Miles, J.A. and H.J. Klein, *The fairness of assigning group members to tasks*. Group & Organization Management, 1998. **23**(1): p. 71-96.
8. Rajlich, V., W.A. Syed, and J. Martinez, *Perceptions of contribution in software teams*. Journal of Systems and Software, 2000. **54**(1): p. 61-63.
9. Kitayama, S., et al., *Individual and collective processes in the construction of the self: self-enhancement in the United States and self-criticism in Japan*. Journal of personality and social psychology, 1997. **72**(6): p. 1245.
10. Campbell, W.K. and C. Sedikides, *Self-threat magnifies the self-serving bias: A meta-analytic integration*. Review of General Psychology, 1999. **3**(1): p. 23.
11. Brooks Jr, F.P., *No silver bullet essence and accidents of software engineering*. Computer, 1987. **20**(4): p. 10-19.
12. Dunning, D., J.A. Meyerowitz, and A.D. Holzberg, *Ambiguity and self-evaluation: The role of idiosyncratic trait definitions in self-serving assessments of ability*. Journal of personality and social psychology, 1989. **57**(6): p. 1082.
13. Rajlich, V., *Decomposition/generalization methodology for object-oriented programming*. Journal of Systems and Software, 1994. **24**(2): p. 181-186.
14. Frederick Nichols Kerlinger and H.B. Lee, *Foundations of Behavioral Research, Third Ed.* 1999.
15. Sonnentag, S., *Excellent software professionals: experience, work activities, and perception by peers*. Behaviour & Information Technology, 1995. **14**(5): p. 289-299.
16. JONES, L., *Peopleware: Productive Projects and Teams*. R&D Management, 1990. **20**(1): p. 88-89.
17. Osama, A., *Pakistan's Software Industry: Best Practices & Strategic Challenges (An Exploratory Analysis)*. in *Ministry of IT, Govt. of Pakistan*. 2005.
18. Nauman, A.B., et al. *An analysis of capabilities of Pakistan as an offshore IT services outsourcing destination*. 2004: IEEE.