THE HUMAN FACTOR IN RESEARCH PROJECTS CONDUCTED AT POLISH UNIVERSITIES

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Abstract: This article is based on research conducted at the Wroclaw University of Science and Technology and was financed by the National Centre of Science with the purpose of identifying success and failure factors for university research projects. The research shows that the human factor was crucial in determining the outcome of university research projects. This article presents the analysis and results of selected aspects of a research project into human resource management. The study involves in-depth interviews with 40 project managers of university research projects. Based on interview responses, the following features are evaluated: main reasons for starting research projects, different methods of selecting the research project manager, research team member selection criteria, management styles used by research projects managers, and crucial problems connected with the human factor that occurred in the research projects being analyzed.

Introduction

Research projects are usually experimental scientific elaborations that aim to provide novel solutions within a certain domain (Katz & Tushman, 1979).

The following aspects of research projects are of interest in human resource management:

- the main reasons for starting research projects;
- different methods of selecting the research project manager;
- research team member selection criteria;
- management styles used by research projects managers; and
- crucial problems, connected with the human factor in research projects.

This article's objective is to present the results of a study into such selected aspects regarding university research projects. Its main aim is to identify success and failure factors relevant to such projects.

Data and Methodology

The study was conducted at several Polish universities and was financed by National Centre of Science. In-depth interviews were conducted with 40 project managers of research projects, with varying team sizes (Figure 1).

Figure 1: Varying team sizes of research projects assessed for success factors
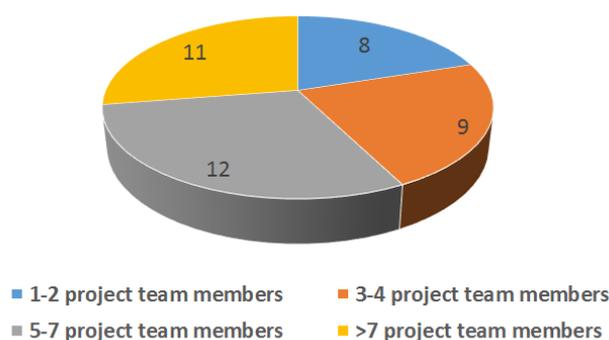
Source: Author

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Interviews were conducted on the basis of a formal questionnaire, as described in Klaus-Rosińska et al. (2016). The questionnaire was compiled based on the literature concerning project success and failure factors (Balachandra & Friar, 1997; Betta et al., 2014; Blumer et al., 2013; Camilieri, 2011; Elkadi, 2013; Frączkowski et al., 2014; Jain & Triandis, 1997; Luglio & Bertazzoni, 2010; Mahmood et al., 2014; Pinto &, 1989; Zou et al., 2014) and based on Goodman & Ignacio (1999), which contains similar idea for civil engineering construction projects. Interviews were each 1–2 hours duration. During interviews, research project managers were asked why they undertake such projects at Polish universities. More than one answer was possible. The study also analyzed management styles used by research project managers.

This present research considered six styles:

- The Democratic Management Style where project team members are trusted to have the skills, knowledge and come up with decisions to which everyone is committed. Project manager's role is only to fine-tune and approve the plan;
- The Affiliate Management Style where the project manager promotes harmony, cooperation, and pleasant feelings among project team members;
- The Authoritative Management Style where decisions are made by the project manager. The manager's goal here is to provide a vision and a focused leadership;
- The Coaching Management Style directed towards the professional growth of employees;
- The Perspective Management Style based on a continuous control; and
- The Process Oriented Management Style focused on standards and how to perform the tasks.

Results and Discussion

The research showed that human factors connected with human resources were valued indicators of success for research projects. Project managers could select as many indicators as they considered relevant for project success. All respondents (40 project managers) considered the involvement of the project team members as critical to the success of their research project. Thirty-nine included strong motivation of project managers. The least popular was the ability to work in a team, which was attributed by 34 managers as a critical factor. This indicator still scored more than 50% of the 40 possible.

Figure 2: Success indicators for research projects as rated by project managers
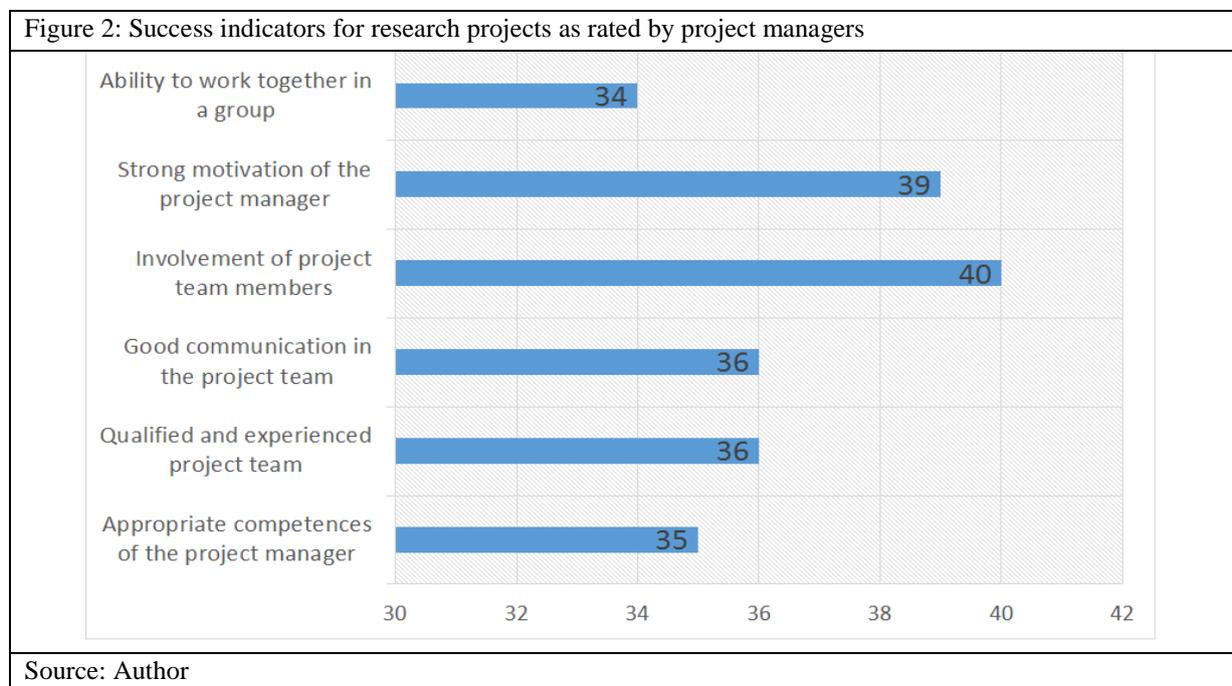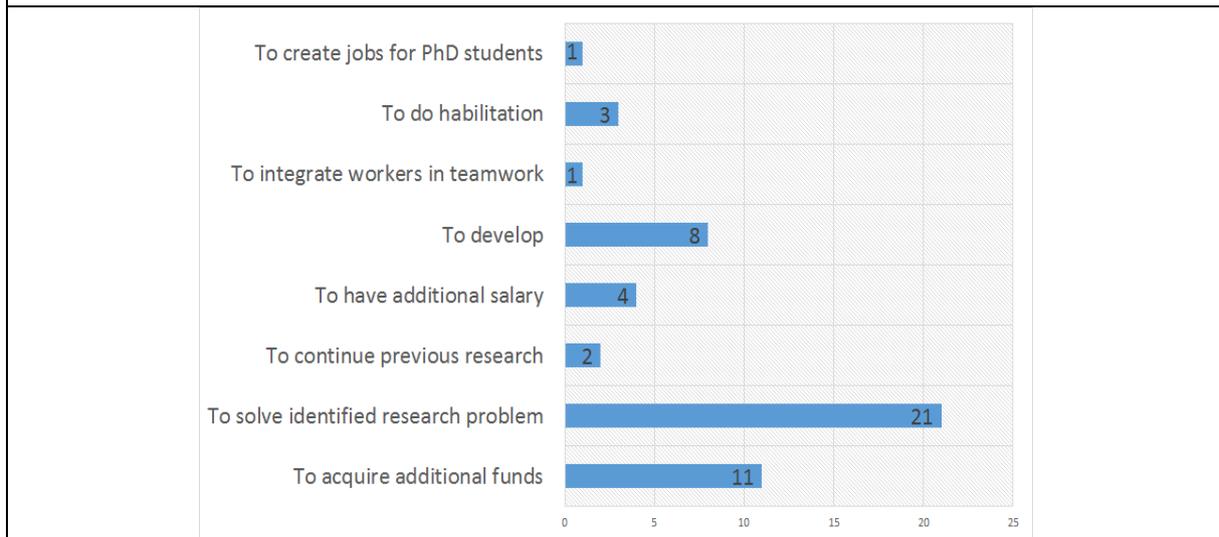

Source: Author

Figure 3 presents the project manager responses to the question about their reasons for initiating their research projects. Eleven project managers gave their reasons as a desire to acquire additional funds. Therefore, research topics are selected for the grant rather than for the research itself. Nevertheless, 21 project managers stated that their reason was 'to solve a research problem' and eight project managers advised that their main reason for starting a research project was self-development.

Figure 3: Main reasons project managers gave for initiating research projects

Source: Author

The responses to the interview question about methods of selecting the project manager for the research included the following:

- the originator of the research, project initiator, automatically became a project manager;
- the person who submitted the application automatically became a project manager;
- the person selected himself and chose the team;
- the team itself selected a person with the greatest knowledge and experience in the given research area; and
- the head of the research center that received the grant became a project manager.

In most cases (35 of the 40), the responsibilities of the project manager and team members were clearly defined. Though not always formalized in the form of project documentation, responsibilities were defined informally through frequent and regular team meetings. Only in one project had the team members signed a list of responsibilities. Project managers did not use any formal tools for supervising and monitoring the performance of employees. They motivated their team members with their own attitude, involvement, and passion.

The responses to the interview question regarding the criteria and methods for selecting the research team members included the following:

- competence and substantive preparation;
- their number of publications in a given research area;
- current scientific achievements;
- experience in similar projects completed;
- previous successful cooperation and trust resulting from long-term cooperation;
- person was within a given unit that reported themselves to the project from this unit;
- person was an external applicant, accepted on a competitive basis;
- person was the best student or PhD student;
- person was an associate who dealt with the same subject as the project manager.

Results of analysis regarding management styles of the research project managers are presented in Figure 4. In some cases, project managers were associated with more than one management style. Not applicable in the cases where 1-2 people were involved in the analyzed project.

The Democratic Management Style results in harmony and understanding. The Authoritative Management Style or the Perspective Management Style are not ideal because team members usually find their motivation in themselves. One project manager stated that he usually applied 'the mixture' of the styles depending on the situation and depending on the people he is working with. The results show that some research project managers prefer to use more than one management style.

Figure 4: Management styles used by research projects managers
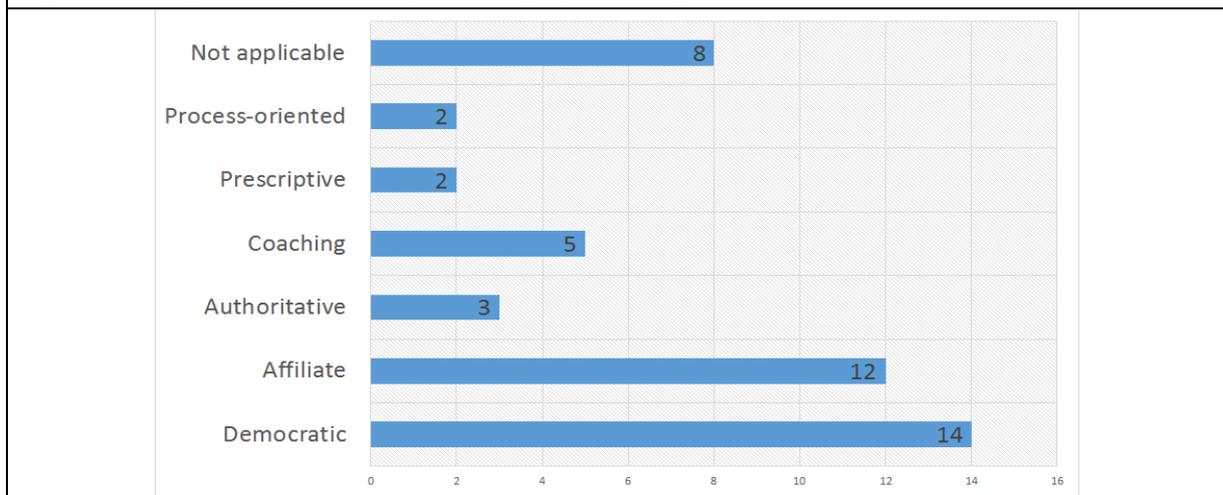
Source: Author

Finally, in connection with the human factor, research projects were found to suffer the following crucial problems:

- A project manager resigned from his role during the project due to personal reasons. This delayed the project because it was necessary to recruit a new project manager.
- The institution governing the project changed employment conditions from a contracted to a regular job with a decrease in salaries reducing motivation.
- The skills of the competitively selected members were found to deficient. Thus, it was better to engage people from the home university who were already known to the researchers.
- Conflicts between scientists and administrators. Problems resulted because of differences in understanding the responsibilities of both parties, i.e., what is most important in the project.
- One team was overly small, and team members were overloaded with work. The grant work was surplus (additional) to normal work, and the scientists worked on many grants, and this affected the implementation of the project (e.g., delays).
- Conflicts between scientists within one project team. These were due to personal reasons, different personalities, and views.
- Some projects managers did not have predispositions for managing human resources. During interviews, many project managers stated that it was difficult to manage people who were specialists in the field and had high academic degrees.

Conclusion

The results of interviews revealed that human factors were crucial in the success of research projects at the Polish universities is a human factor. This was also confirmed by a preliminary analysis of interview surveys conducted within the same project, but not yet published. Moreover, the study identified the main reasons for starting research projects. Based on the performed interviews with research project managers it can be said that the main reasons for starting research projects are: the need of solving an identified research problem and the need of acquiring additional funds.

The study also defined main methods of selecting research project managers and research team member selection criteria, analyzed management styles used by research project managers and crucial problems connected with human factor that occurred in the research projects being analyzed. Most often the project initiator became automatically a research project manager. The main research team member selection criteria are: competence and substantive preparation in the area of a given project and previous successful cooperation and trust resulting from long-term cooperation. Most often the research project managers use democratic management style in their projects. Conflicts between scientists and administrators is the crucial problem connected with human factor that occurred in the research projects being analyzed.

The direction of future research could involve the views of other stakeholders in research projects and a comparison of the results.

Acknowledgements

References

Balachandra, R., & Friar, J.H. (1997). Factors of success in R&D projects and new product innovation: a conceptual framework. *IEEE Transactions on Engineering Management*, *44*(3), 276-187.

Betta, J., Gładysz, B., Kuchta, D., & Skowron, D. (2014). R&D projects in science sector. R&D Management.

Blumer, Y. B., Stauffacher, M. et al. (2013). Non-technical success factors for bioenergy projects-Learning from a multiple case study in Japan. Energy Policy, 386-395.

Camilieri, E. (2011). Project Success: Critical Factors and Behaviors, Gower Publishing Company.

Elkadi, H. (2013). Success and failure factors for e-government projects: A case from Egypt. *Egyptian Informatics Journal*, *14*(2), 165-173.

Frączkowski, K., Gładysz, B., & Kuchta, D. (2014). Analysis of factors affecting the success of IT projects in Poland, Raporty Inst. Organ. PWroc Ser. PRE nr 3.

Goodman, L., & Ignacio, R. (1999). Engineering Project Management: The IPQMS Method and Case Histories. Boca Raton: CRC Press.

Jain, R. K., & Triandis, H. C. (1997). *Management of Research and Development Organizations. Managing the Unmanageable.* New York: John Wiley & Sons Inc.

Katz, R., & Tushman, M. (1979). Communication patterns, project performance, and task characteristics: An empirical evaluation and integration in an R&D setting. *Organizational Behavior and Human Performance*, *23*(2), 139-162.

Klaus-Rosińska, A., Kuchta, D., & Ptaszyńska, E. (2016). Identyfikacja czynników sukcesu i porażki projektów badawczych-zastosowane metody i narzędzia. Innowacje w polskiej nauce w obszarze nauk ekonomicznych. Przegląd aktualnej tematyki badawczej, Wydawnictwo Nauka i Biznes, 32-49.

Luglio F., & Bertazzoni N. (2010). Research management in higher education institutions: A process management experience in Italian Universities. CRIS 2010: Connecting Science with Society - The Role of Research Information in a Knowledge-Based Society - 10th International Conference on Current Research Information Systems, 75-84.

Mahmood, A., Asghar, F., & Naoreen, B. (2014). Success Factors on Research Projects at University. An Exploratory Study. *Procedia - Social and Behavioral Sciences*, *116*(0), 2779-2783.

Oleksyn, T. (2011). Sztuka kierowania, Wyższa Szkoła Zarządzania i Przedsiębiorczości, Warszawa.

Pinto, J. K., & Covin, J. G. (1989). Critical factors in project implementation: a comparison of construction and R&D projects. *Technovation*, *9* (1), 49-62.

Zou, W., Kumaraswamy, M., Chung, J., & Wong J. M. W. (2014). Identifying the critical success factors for relationship management in PPP projects. *International Journal of Project Management*, *32*(2), 265-274.