

Determinants for Failure and Success of Innovation Projects

Paul A. Kirschner*, Bas Cordewener†, Fred Paas*, Iwan Wopereis*, Maaike Hendriks*

*Open Universiteit Nederland, Educational Technology Expertise Center
paul.kirschner@ou.nl

†SURF Foundation / Platform ICT and Education
cordewener@surf.nl

Abstract

The Platform ICT and Education of SURF (Platform ICT-E), a part of the SURF Foundation which is a government-funded national organization in which all higher education institutes in the Netherlands participate set up to increase the pace of educational innovation strives to stimulate a better and more creative use of ICT within higher education. These efforts are not only focused on the primary process, but also on the modernisation and integration of all supporting processes within the educational organisation. To that end, the Platform ICT and Education stimulates – by co-financing – educational innovation projects at institutes for higher education in the Netherlands. To find out how these innovation projects can be initiated, implemented and institutionalised more effectively, the Educational Technology Expertise Center of the Open University in the Netherlands was asked by SURF to conduct an in-depth study investigation into success factors of innovation projects in higher education, in particular, of the innovation projects that are financed by SURF Education. In line with the recent observation by the Scientific Technical Council (WTR) of SURF that structural embedding of the project results in the institute deserves more attention, this study pays special attention to the determination of success factors that are important for the realisation of sustainable innovations in education. This report presents the results of the in-depth study into success factors of innovative ICT projects in education.

This study identified determinants for success of large-scale educational innovation projects in Dutch higher education to enable future projects to achieve better and more sustainable results.

Keywords: Educational innovation, Success factors, Failure factors

1 The Problem

Robert Burns wrote: “The best laid schemes of Mice and Men oft go awry”. This could also be the motto of most educational innovation, especially innovation involving the use of information and communication technologies (ICT). The question that arises is not only why some innovations fail (although this is very important question), but also why others succeed? This study investigated the success and

failure factors of large-scale educational innovation projects in Dutch higher education, in particular of the projects funded by the SURF Platform ICT and Education (Platform ICT-E), a part of the SURF Foundation; a government-funded national organization in which all higher education institutes in the Netherlands participate set up to increase the pace of educational innovation. As has been the case in most Western countries, the Dutch Government has invested heavily in stimulating better and more creative use of ICT in all forms of education, including higher education, to ensure that students are equipped with the skills and knowledge required for success in the new knowledge-based economy. All stakeholders (e.g., government, industry, educational institutions, society in general) have placed high priority on achieving this goal. However, these highly funded projects have often resulted in either short-lived or local successes or outright failures. The role of ICT is developing less quickly in higher education institutions than expected. To remedy this, Platform ICT-E funded the present project to try to determine why the successful projects were successful and why unsuccessful projects failed so as to help future projects achieve better and more sustainable results. The identification of success and failure factors for educational innovation projects, and measuring performance of projects based upon these factors, is important to Platform ICT-E as their identification can aid the development and implementation of innovation projects by making those success and failure factors relating to educational innovation projects in higher education both explicit and visible (and thus making them manageable).

To increase the pace and impact of educational innovation the Dutch Government has placed high priority on achieving better use of information and communication technologies in education. However, the results of government-funded educational innovation projects have been very inconsistent.

2 The Procedure

The research team identified success and failure factors relevant to educational innovation projects. The research was largely qualitative. First, a literature review of success and failure factors was conducted to identify existing knowledge in this area. This was followed by a detailed study of the educational innovation projects funded by Platform ICT-E. To validate the factors found in the literature and to further

expand them, existing project documentation and evaluations were reviewed and the project chairs and other important players were interviewed. Reports and evaluations by the projects themselves were reviewed to extract commonalities and differences in the factors that the projects felt were influential in their success or failure. The project chairs of both highly and less successful innovation projects were interviewed so as to pinpoint factors of importance that were facilitative or detrimental to the outcome of their projects and the ultimate implementation of the innovations (i.e., their sustainability). Finally, experts in the field of innovation and innovation management took part in two research sessions. These experts were first required to record all potential success factors (in total 221) after which they were asked to cluster them using an affinity technique. The clusters were then labelled and clustered, creating a hierarchy of potential success factors. The experts were then asked to select the five most important success factors out of the hierarchy, and to rank their importance. This whole technique – the Experts' Concept Mapping Method – is based upon Trochim's concept mapping approach [2][3] and was developed and perfected by Stoyanov and Kirschner [1].

The results of this research, along with checklists for determining and tracking project health for the different phases of project conception and development and procedures for awarding and monitoring proposed educational innovations, will be presented.

2.1 Literature study

The first element, the literature study, presents a three stage integrative model (I3 model – Initiation, Implementation, Institutionalisation) as guide for establishing policies and procedures, formulating new guidelines for project proposals, the assessment of SURF Education innovation project proposals, conducting a project's health check to identify warning signs for failure, and promoting the diffusion and sustainability of the projects' innovations. The model presents 42 factors that are imperative to accomplishing a successful project, categorized by project stage. The literature study delivered a number of lessons that were and should be learned / eye-openers:

1. Project success is not innovation success

There are two types of 'success', namely the success of the innovation project itself and the success of the innovation for education (its ultimate implementation). These two 'successes' are completely different and neither is a requirement or a guarantee for the other. Also, success of an innovation at the project level does not automatically generalize to success at the institutional level, but needs careful considerations of scalability, generalisability, temporal flexibility, and financial sustainability.

2. An organisational manager is not a project manager

Related to the prior eye-opener, there is also a major difference between being a competent project manager

and a competent organisational manager. The goal of organisational management is to plan, guide and help the organisation work well and survive; in other words achieve continuity. The goal of project management, on the other hand, is to actively plan the end of a project; in other words to break with continuity and achieve change. A project must end in order to be successful whereas an organisation must survive in order to be successful.

Also, in contrast to organisational managers, project managers have to start their task from scratch, initiating and bringing an organisation to life. To start something in order to end it within a fixed period of time, according to a budget and a number of restrictions distinguishes the nature of project managers from the nature of organisational managers.

Neglecting this difference can lead to incompetent project management, both in industrial organisations and in educational organisations. According to the Standish Group¹, 97% of the successful projects investigated in their research had an experienced project manager at the helm.

3. Sustainability should be a planned strategy for maintaining change and not some kind of afterthought. Ways to promote the sustainability of an innovation are:
 - Requiring applicants to present a detailed plan for sustaining the innovation.
 - Challenging applicants to realize this plan after the project has ended; that is once the funding period of the innovation grant is over.
 - Making the applicants/project managers aware of the success factors imperative to sustainable innovations.
 - Familiarizing project managers and team members with methodologies that can be used in the institutionalisation phase to attain sustainable innovations.
 - Using (financial) incentives to challenge the project team and the institution to maintain the innovation and diffuse it to other institutes.
 - Making part of the funding conditional on the realization of the plan for sustaining the innovation.
4. Avoid the six sure-fire failure causes:
 - Lack of balance between investments and output: high investment with low output.
 - Information politics: power is abused and information is not transmitted.
 - Lack of responsibility: uncertainty about the responsibility of people inside and outside the project.
 - Culture gap: the gap between ICTers and the rest of the organisation and between those planning education (managers) and those administering education (teachers).

¹ The Standish Group collects and analyses case information on real-life IT environments. <http://www.standishgroup.com>

- Over-commitment: not knowing when to cut your losses and stop a project.
 - All-in-one solutions: trying to do everything at once instead of using multiple projects, steps, and phases.
5. Embrace the four critical ‘win drivers’:
- Define and anchor the project objectives early to involve the stakeholders and anchor a common understanding and commitment.
 - Determine the roles and responsibilities of all actors (clients, participants, stakeholders, owners).
 - Innovative projects involve changes and adequate change management is required.
 - Systematically and thoroughly monitor and measure control and performance.
6. Small changes often are larger than we think
The greater the number of changes, the more factors that influence the chances of success with a resulting increase in the risks of the project. In other words, an increase in interaction leads to a decrease in control, which leads to a decrease of the chance of success.
7. Innovation is like a nuclear reaction: Small is beautiful
Mass Diffusion theory argues that for most members of a social system, the innovation-decision depends heavily on the innovation-decisions of other members of the system. When about 10-25% of the system members adopts the innovation, relatively fast adoption by remaining members will follow. Initial full-scale implementation is detrimental.
8. Opinion leaders - Know your enemies and make them allies:
Mass Diffusion theory also argues that certain group members (opinion-leaders in which the other group members have great trust) directly affect the innovation-decision of other members. Opinion-leaders need not necessarily be the hierarchical leaders. Getting an acknowledged sceptic on board could be more important than getting a boss on board.

2.2 Group concept mapping

To validate the factors found in earlier literature research as well as to further expand them experts in the field of (educational) innovation and innovation management took part in two research sessions making use of a Group Concept Mapping Procedure. Experts generated and recorded 220 potential failure and success factors. These factors were then clustered by them using an affinity technique and analysed resulting in 13 factor clusters. Finally, the experts were asked to rate each of these factors on their importance for educational ICT innovation projects, thereby creating a hierarchy of potential failure and success factors. The 13 clusters with their mean importance rating are:

Cluster	Rating
Participation, Information and Communication	3.75
Added value	3.73
Stakeholder involvement	3.68
Quality of institutional management	3.65
Project and process management	3.61
Focus and complexity	3.56
Competency of the project team and its members	3.53
Relationship between project and real problem / core business	3.51
Competency of the project manager	3.44
Means to support the project	3.42
Organisational culture	3.37
Position of innovation within the organisation	3.29
Project optimisation: Start small and then go for it!	3.25

Table 1: Clusters of factors.

The 10 most important (highest rating by experts) success and failure factors are:

- 1 Make the added-value visible
- 2 Make the benefit of a product clear (new is not always better)
- 3 Choose a competent project chair
- 4 Celebrate your successes
- 5 Management must be involved and competent
- 6 The project chair must be completely dedicated
- 7 Ambition counts!
- 8 Form an expert and professional team
- 9 Involve all stakeholders (teachers, students, administrators, directors)
- 10 Keep the culture open

The top priorities for innovation projects, thus, lie in the areas of *Participation, information and communication*, and *Stakeholder involvement* on the one hand and *Added-value* on the other. The former are people clusters with as direct practical implication the requirement for involving users (clients) right from the beginning of the project in the analysis, design, development, evaluation, and implementation of the innovative outcomes, practical arrangements known as participatory design. The latter can probably regarded as the most important single cluster with factors such as *Make the added-value visible* and *Make the benefit of a product clear*. A conclusion that can be drawn from these results is that to prevent failure there should be a clear reason underlying the educational innovation project that justifies educational change.

2.3 Interviews/Ratings

To determine which factors played a role in innovation projects funded by SURF Education interviews were held with the project chairs of eight completed SURF Education

projects selected from the tenders of 1999, 2000, and 2001 and classified as either highly successful or less successful. It began with the identification of meaningful combinations of clusters based on the 42 success and failure factors found in the literature study. After this, experts from SURF Education rated the level of success of the projects resulting in the selection of eight projects (four ‘highly successful’ and four ‘less than successful’). The project chairs of the selected projects were then interviewed to determine how they dealt with the identified success and failure factors, and were asked to rate these factors with respect to their degree of importance, the degree to which they were taken into account during the project, and the degree to which they were influential for success of the project. The interview/rating results reveal that:

- A number of highly important clusters were not really taken into account by the project chairs: Project staff qualities, Organisational management, Added value/use/necessity, Expectations involved parties, and Scale/complexity.
- Two of these clusters (Project staff qualities and Scale/complexity), though not taken into account, were considered highly influential for the success of the project.

Interesting was whether ‘highly successful’ and ‘less than successful’ projects rated or implemented the factors differently. In other words: Are there factors that discriminate between highly successful and less than successful projects?

The results from this analysis show that:

- Four clusters (Delineation of project content, Communication, Added value, and Scale/complexity) were always rated higher by the project chairs of highly successful projects with respect to all three measures (importance, taken into account, and influence).
- Five clusters (Communication, Commitment/engagement, Expectations of parties involved, Project culture, and Scale/complexity) were significantly more taken into account by the project chairs of highly successful projects.
- Three clusters (Commitment/engagement, Expectations of parties involved, and Scale/complexity), though considered to be of paramount importance were nonetheless significantly less taken into account by the project chairs of less than successful projects. These three aspects of innovation and innovation projects might be considered watershed aspects (discriminating clusters of factors).

The interviews with the project chairs were generally very positive with respect to a number of (successful) procedures of SURF, namely the good *support* and *counselling* by SURF regarding process and content problems, SURF and SURF Education management’s *flexibility* with respect to overcoming problems, and the very apparent *commitment* of SURF and SURF Education management to the projects and the project staff. Be that as it may, the chairs also listed a number of points for improvement for SURF, namely with respect to intake at the beginning of the project, the review of

the content by experts, and a need for a more compact style of reporting

2.4 Project documentation

Finally, a detailed study of the documentation of the eight selected projects was carried out. The project documentation delivered by the project chairs was analysed based on the questions whether and to what extent they paid explicit attention to the 14 clusters used in the interviews and rating questionnaires. Furthermore the documentation was scanned for the lessons learned and success and failure factors mentioned by the project chairs and whether the problems mentioned during the interviews could also be found in this documentation. Also, the reviews and review procedures were analysed on differences between procedures that could indicate whether the project would turn out to be either highly successful or less successful.

With respect to the analysis of project documentation delivered by the project chairs it is clear that though there is much documentation, there is also much overlap between the documents giving the impression of reporting for the sake of reporting. This is strengthened by the fact that although the documents were complete and the reviews were thorough, they were/are not sufficient to signal approaching success or failure! Also, no differences or determinants for failure or success can be found in the procedures, reviews, support, or counselling by SURF. In other words, the documents and their evaluations do not discriminate between highly successful and less successful projects. Finally, the lessons learned section of project document is highly valued by project chairs. Among the lesson’s learned were that:

- a committed (financial, human resource capacity, time and resources) management is critical
- management not only needs to be committed, but also capable of delivering the needed resources
- management should be a change-management with a competent change agent. This echoes the finding in the literature study that there is a world of difference between project management and organisational management and that this must be taken into account when staffing a project
- stability of the staff is important; it is especially preferred not to change the project chairs halfway a project.

3 Conclusions

There are a number of ‘open doors’ presented in this research. The next step is for educational innovators to see this and walk through them.

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References

- [1] S. Stoyanov, P. A. Kirschner.. “Experts’ concept mapping method for defining the characteristics of adaptive e-learning: ALFANET project case.” *Educational Technology Research and Development*, 52(1). (2004)
- [2] Trochim, W. (1989a). An introduction to concept mapping for planning and evaluation. *Evaluation and Program Planning* [Special issue], 12, 1-16.
- [3] Trochim, W. (1989b). Concept mapping: soft science or hard art? *Evaluation and Program Planning* [Special issue], 12, 87-110.