

Supporting Reflection-in-action with Lightweight Collaborative Tools in Student Multimedia Development Project

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Abstract :

Reflective activities are part of any project activity and have been demonstrated to be useful in using lessons learned for improvement. However, organizations are not willing to approve time for reflections due to tight deadlines. Through a case study and narrative/story telling analysis, the author demonstrates how reflection-in-action can be aided by lightweight collaborative tools such as Google drive. Reflection logs helped the multimedia development team reflect within phases of the multimedia development in order to learn from their experiences. The success of the collaborative tool in serving the purpose of the development team is attributed to ease of use and familiarity. The potential to aid reflection-in-action on an entire multimedia project process by use of reflection logs in a lightweight collaboration tool was identified.

Research contributions in this area will be valuable in providing insights to makers of lightweight collaborative tools who may want to extend the area of application of their tools to reflection-in-action.

Keywords : *Light collaborative tools, Google drive, reflection-in-action, reflection logs, collaboration, and multimedia.*

I. INTRODUCTION

Multimedia development projects are highly collaborative and cooperative in nature [1] and learning from reflections is essential. While large organizations may have integrated and heterogeneous systems to support, coordinate, and facilitate multimedia development projects, the same cannot be said of small organizations and student projects.

Reflective exercises are part of any project activity [2] and include various methods for recording hindsight experiences from the project for the purposes of using lessons learned for improvement. Schön's [3] reflection-in-action, essentially the thinking and reflecting taking place in the midst of practice, can be applied to interactive multimedia training development. In this paper, reflection-in-action refers to the process of reshaping the phase of a multimedia project one is working on; an on-going experimentation to find a viable solution.

Hammer and Staton [4] stated that “successful organizations fail in many different ways, but they share one underlying course: a failure to reflect. Schein [5] on the other hand discusses the apprehension of organizations towards “slack” time for learning. Organizations are not willing to approve time for reflection. Reflection has been proven to improve one’s learning from experience. Reflection-in-action can help improve on the spot, in-process decision. The benefits of reflections are widely known and acknowledged in the literature [6]; [7]. While reflection can be beneficial, it requires and takes valuable time.

The objective of this paper is to investigate the potential to support project teams’ quest to meet requirements for quick delivery, while following the multimedia development process, and at the same time build in time for valuable reflection using lightweight collaborative tools. Lightweight collaborative tools essentially provide the affordance of basic collaborating functionalities without much structure thereby allowing flexibility in the incorporation of such tools in the collaborative process. In terms of cost of acquisition and ease of use, lightweight collaborative tools require little resources and as such may be the choice of small firms and teams.

Lightweight collaborative tools are widely acknowledged in the Computer Supported Collaborative Work (CSCW) literature [8]; [9]. For example, there is ample research in the literature on using data gleaned from collaborative tools to gain an understanding of collaborative work activity. The potential to aid reflection-in-action on an entire multimedia project process by use of reflection logs in a lightweight collaboration tool was identified.

Research contributions in this area will be valuable in providing insights to makers of lightweight collaborative tools who may want to extend the area of application of their tools to reflection-in-action. It will also provide knowledge to project managers on what makes a tool useful for reflection-in-action.

II. BACKGROUND

This section briefly provides a background on the foundations of reflection as part of individual, group, and organizational learning process. Dewey [10] pointed that reflection is the “heart of intellectual organization and of disciplined mind”. Schön [3] drew a connection between reflection and professional practice which resulted in the term reflection-in-action and characterized it as “real time thinking on your feet as a tool to develop reflective practice” [2]. Seibert and Daudelin [11] extended the insight provided by [3] and pointed out that reflection-in-action occurs in situations of uncertainty, instability, uniqueness, or value conflict.

Other types of reflections in the literature are reflection-on-action and reflection-for-action. Reflection-on-action is a retrospective reflection that occurs after the fact. It is planned, formal and designed to critically analyze past events in order to learn from them to improve the future. Reflection-for-action is anticipatory and forward looking [3].

The second cardinal point of Kolb [12] experiential learning cycle is reflection. The experiential learning cycle refers to a process in which individuals, teams, and organizations attend to and understand their experiences and consequently modify their behavior.

In addition to demonstrated impact of reflection on individual learning, the literature also shows relations between group and organizational learning [13-15]. Schon's [3] reflection-in-action and reflection-on-action mirrors that of [11] active reflection and proactive reflection which theorized that the conventional method of debriefing after an event cannot be the only avenue to learn and plan for the future. Their view of managerial reflection is one in which organizations create a conducive atmosphere to foster proactive reflection in addition to the ability of managers to reflect individually, with peers, and with coaches.

III. THE CASE

The case is a multimedia development student team in a graduate project course. The project was designed to provide a work setting as close to industry multimedia development as possible. Meeting customer requirements, within a stipulated time, was a primary goal. In addition, students had to meet university requirements for semester grade. There were seven students forming the multimedia team.

As part of the project, a reflection-in-action training was organized for the teams involved in the project. Team members individually and collectively engaged in "reflection-in-action by sharing their thoughts, questions, and alternatives with the client and other stakeholders and by encouraging them to reflect and do the same" [2]. The team was asked to write reflections within each phase of the multimedia development process, analysis, design, development, implementation, and evaluation. The reflective activities were intended to create opportunities for the team to step back from the action, learn from the experience, and to apply what is learned.

To support the reflection process, the team used Google drive. Google drive supports collaboration and the organization of work into phases, and it is lightweight in the sense that it contains the basic features that can be used to support reflection-in-action within the phases of a multimedia development work. The spreadsheet feature was used to create and assigned tasks and deadlines while the document feature provided the canvas for reflection. The document feature is thus central to the reflection-in-action in the multimedia project, particularly when team members are not in the same location. Drawing, a feature of Google drive was fundamental for the graphic element of the project.

The project team consisted of a production manager, content specialist, script writer, text editor, program authoring specialist, graphic artist, and audio-visual specialist.

IV. RESEARCH METHOD

The research used case study and narrative/ storytelling techniques. The main source of data is a reflection-in-action or reflection entries made by the multimedia development team. According to [16], learning logs are methods of assessment that record experiential learning. There is also evidence in the literature for using reflection logs as research instruments [17]. Since there is no formal methodology for interpreting

reflection or learning logs data [18], the author adapted their earlier work. The study had two phases. Phase one was the preparation phase. The preparation phase was important since it provided the team with training on writing effective reflections. The training was done over a period of two days prior to the beginning of the project. Participants were coached on how to build reflection into initial contract and project plan with clients.

Phases two involved the individuals within the multimedia development team recording their assigned roles. Each team member recorded their contributions during each phase of the multimedia development process. The individual, using a structured template, reflected upon how current actions contributed to the overall project goal, how well the team was following the multimedia development process, how well they were working together in their interactions, what skills they were using effectively, and what they were learning and how it could be applied to the project. The longitudinal study of the multimedia development team project was conducted through a sixteen week semester, including 30 hours of observation of project meetings. The project artifacts (including reflection contents) were frequently examined.

Reflection-in-action within the phases of the project was done as individual, collaborative and coached activities. At the individual level, each team member reflected in the moment and during brief respites. At the collaborative level, the reflector shared thoughts with others in the moment and got perspective about the situation during respite. The coached activity involved the researcher working ahead of time to develop reflective skills, provide fresh perspective, and facilitate individual or collaborative reflection.

Two questions guided the study: first, the author looked for indications that the use of Google drive benefited reflection-in-action by helping the team to experience, re-evaluate, and create new perspectives. Second, the author wanted to know if reflection-in-action impacted the delivery of multimedia product.

V. ANALYSIS

Two approaches were used to analyze data from the reflection logs. These were case study analysis; and storytelling and narrative analysis. The author played the role of participant observer. By reading the reflection entries of the team, the author's experience became part of the story as it is retold. The author had access to the Google drive as a collaborator and became an observer participant to provide guidance and answered questions from project team members.

Case study analysis was conducted on the reflection logs based on frequently cited case study analysis methodologies [19-20]. The narratives in the reflection logs were analyzed to establish themes. The case study analysis of reflection logs offered a context to the reflections of the multimedia development team. It aided the author to appreciate the experience of the team and provided a deeper understanding of the data.

The narratives in the reflection logs were the real experiences of the team members and provided a window through which the learning experiences could be gauged. The author read the reflection log of each member to identify principal themes. Narrative and storytelling analysis offered the author a rare insight into the

personal perspectives on multimedia development project by seven individuals. It also proved valuable to Learning Log Analysis.

VI. RESULTS

A lightweight collaborative tool (Google drive) was used to support reflections in a multimedia development project. Based upon evaluations, the lightweight collaborative tool proved successful in supporting reflections in multimedia development project. The team was generally satisfied with their assigned tasks and contributions in the development project. Discussing reflection up front engendered a reflective mindset. It also ensured that expectations were clear.

Findings showed that certain members of the team were only comfortable engaging in individual reflections and did not participate in the collaborative reflective activities. Collaborative and coached reflective activities proved to be important features in the successful implementation of the multimedia development project. The team's ability was improved. The list of reflective questions that were addressed individually and collaboratively with the author translated into meaningful learning and action. Participants concluded at the end of the project that reflective activities through Google drive helped their overall communication so that they avoided major set-backs or derailments during the multimedia development project. It was the main contributor in the delivery of the multimedia project to the client, on time.

VII. DISCUSSION

The findings illustrate how lightweight collaborative technology can be used to support daily work practice in multimedia development project. In this section, the author addresses why the lightweight collaborative tools aided reflection-in-action and also helped the development team deliver the finished product on time. The author does this by considering the work practice; including the reflection-in-action effort, and by analyzing the reflection logs. The participants agreed to raise issues as they occurred during the phases of the multimedia development phases and agreed to use Google drive to share information.

As a whole, the study shows how individual, collaborative, and coached reflections play a role in supporting cooperative work. A core idea in the two-day reflection training was that individual perspectives should be utilized in the construction of collective understanding. This was accomplished through the use of Google drive as follows: a) supporting the day-to-day cooperative project work; b) In the process of reflection-in-action, Google drive was used as an aid to individual reflection on project events; and c) Google drive was used collaboratively by the team to elucidate details in the construction of shared representation of the project.

The reflection logs provided a partial overview of the development process. It also showed that all team members participated in the development process and provided an overview of magnitude of work done by each team member.

From the structure of reflection logs emerged a pattern that depicted the experiential learning cycle of [12]. A project team member had an experience, reflected on it made improvements and tested them out in new situations.

The potential of lightweight collaborative tools like Google drive to support multimedia development projects is promising despite the lack of sophistication. However, the user has to be knowledgeable in the use of the tool and must be willing to make adaptations. For example, the tool does not provide features to navigate between an overview and detail narrative. However, a bookmark link can be created between an overview and the detail. To do this requires knowledge in use of the tool. The project teams were taught how to create bookmarks within the document to aid navigation and to minimize unnecessary scrolling on the page. The answer may be different for other lightweight collaborative tools often used in project work such as instant messaging (IM), wikis, email etc. The findings of this study cannot, therefore be generalized to include IM, wikis and email. One finding that became apparent in the study is that, reflection logs gleaned from Google Drive could provide the basis for a longitudinal approach of gathering data from individual reflective activities.

VIII. CONCLUSIONS

By studying a case of reflection-in-action in a multimedia development project in Google Drive, the author shows how a simple collaborative tool in daily use in a project can help participants learn from their project experience. For this paper a combination of narrative/storytelling analysis and case study analysis were used. This study does not seek to generate a one size fits all approach to reflection-in-action using light collaborative tools. The paper merely attempts to demonstrate how basic and readily available tools can be integrated into reflection-in-action. An issue to be address in further research is the consolidation of all three types of reflections.

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