PMG 4101: Project Management

Review Techniques

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Reviews – Chapter 5

Reference: Applied Software Project Management
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What is Review?

A REVIEW IS ANY ACTIVITY IN WHICH A WORK PRODUCT is **distributed to reviewers who examine it and give feedback.** Different work products will go through different kinds of reviews: the team may do a very thorough, technical review of a software requirements specification, while the vision and scope document will be passed around via email and have higherlevel walkthroughs

Why a Review is important?

- ✓ Reviews are useful **not only for finding and eliminating defects, but also for gaining consensus among the project team**, securing approval from stakeholders, and aiding in professional development for team members.

- ✓ There are **many ways that a work product can be reviewed**. Each kind of review is appropriate for different audiences or kinds of work product.

- ✓ The **goal of every review is to save the project team time and effort**. It's much easier to fix the problems on paper, before they cause software to be built incorrectly.

Different Review Techniques

- ☑ Inspections
- ☑ Deskchecks
- ☑ Walkthroughs
- ☑ Code Reviews
- ☑ Pair Programming

Inspections

What is Inspections?

An ***inspection*** is **one of the most common sorts of review** found in software projects. The goal of the inspection is for **all of the inspectors to reach consensus on a work product and approve** it for use in the project. Commonly inspected work products include software requirements specifications and test plans.

What is Inspections?

In an inspection, **a work product is selected for review and a team is gathered for an inspection meeting to review the work product**.

A moderator is chosen to moderate the meeting.

Each inspector prepares for the meeting by reading the work product and noting each defect. In an inspection, a defect is any part of the work product that will keep an inspector from approving it.

The most important reason to inspect documents is to prevent defects.

Inspections

. The total effort required for the inspection, therefore, is 10 to 20 person-hours; this effort results in the early detection of an average of 5 to 10 defects. (On the average, these defects, if left in the document, would require either 250 to 500 lines of new code or modification of 1000 to 1500 lines of legacy code to repair if they were eventually caught—which would almost certainly require well over 20 person-hours of programmers' time!) This is a very high return on investment; few tools, techniques, or practices are as effective as inspections for increasing the quality of the software.

Inspections

An effective inspection requires a well-chosen team, a moderator who is able to run the meeting, and an author who is willing to listen to criticism and fix the work product being inspected.

Inspections

Choose the Inspection Team

The job of the inspection team is to work with the author of the document in order to identify any defects. A *defect* is any problem in the document that will prevent an inspector from approving it.

The **project manager must choose a team of 3 to 10 inspectors**. Ideally, **each inspector should represent a different perspective on the work product.**

Select a Moderator

The project manager must choose a moderator to run the inspection meetings. This person must be able to objectively evaluate the work product being inspected and understand any issues that are raised during the inspection. The **project manager should be an inspector, so an independent and unbiased moderator is needed**. A good moderator will have sufficient technical background to understand the work product being inspected.

Inspections

The moderator compiles all of the defect resolutions into an *inspection log* (see Figure 5-1 for an example).

# of issues:	16
Review date:	March 16, 2003

Attendees	**Read document**	**Time spent preparing**
Mike (project manager)	Y	Author
Barbara (VP)	Y	1.0 hours
Quentin (requirements analyst)	Y	2.0 hours
Sophie (senior QA engineer	Y	3.0 hours
Jill (senior programmer)	Y	0.5 hours

Issue no.	**Section/page**	**Identified by**	**Issue**
1	Global	Quentin	The term "standard contract" should be replaced with "pro-forma contract."
2	Section 3.1.1 Line 165	Sophie	The contents of the cells in the table are out of order. It looks like some cells were marked down.
3	Section 3.1.2 Line 190	Jill	Specify the look up is by contract number and artist name.
4	Section 3.3b Line 623	Sophie	Tile of the section needs to be changed to "Deletion file (maintenance)." To be consistent with section 3.2.1 #1.

FIGURE 5-1. Sample inspection log

Inspections

Inspect the Work Product

During the inspection meeting, a moderator leads the team page by page through a printed copy of the work product. Prior to the inspection meeting, each team member should be given a checklist to help her identify defects. Checklists will be different for different kinds of

work products

The script in Table 5-1 describes the process for an inspection meeting.

TABLE 5-1. Inspection meeting script

Name	**Inspection meeting script**
Purpose	To run a moderated inspection meeting
Summary	In an inspection meeting, a moderator leads a team of reviewers in reviewing a work product and fixing any defects that are found.
Work Products	*Input* Work product being inspected *Output* Inspection log

P.T.O

Name	Inspection meeting script
Entry Criteria	A moderator must be selected, as well as team of 3 to 10 people. A work product must be selected, and each team member has read it individually and identified all wording that must be changed or clarified before he or she will approve the work product. A unique version number has been assigned to the work product.
Basic Course of Events	1. *Preparation*. The moderator distributes a printed version of the work product (with line numbers) to each inspector, along with a checklist to aid in the review. Each inspector reads the work product and identifies any defects to be brought up at the meeting. 2. *Overview*. The inspection meeting begins. The moderator verifies that each team member is prepared. 3. *Page-by-page review*. The moderator runs through the work product page by page. Inspectors indicate where there are defects. Each defect is either resolved or left as an open issue. The moderator adds each defect to the inspection log. 4. *Rework*. The author repairs the defects identified in the inspection meeting. 5. *Follow-up*. Inspection team members verify that the defects were repaired. 6. *Approval*. The inspection team approves the work product.
Alternative Paths	1. During Step 2, if any team member has not read the work product, then the inspection is halted. The meeting is rescheduled and the script returns to step 1. 2. During Step 4, if an inspection team member discovers additional defects in the work product, then the moderator calls another meeting and the process returns to step 1.
Exit Criteria	The work product has been approved.

Inspections

Few things to remember:

- **“Manage the Author’s Expectations”**

- **“Help Others in the Organization Accept Inspections”**

Deskchecks

What is Deskchecks ?

A *deskcheck* is a simple review in which the **author of a work product distributes it to one or more reviewers**.

In a deskcheck, the author **sends a copy of the work product to selected project team members**.

The team members read it, and then write up defects and comments to send back to the author.

Work products that are commonly reviewed using a deskcheck include vision and scope documents and discussion summaries .

Why Deskchecks ?

There are times **when a full inspection is neither necessary nor useful**.

Some work products do not benefit enough to warrant the attention of an entire inspection team because they do not need consensus or approval.

In these cases, the **author simply needs input from others to prevent defects, but does not require that they approve the document**. In these cases, the deskcheck is a useful review practice.

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Deskcheck

But, **despite the lack of formality, the deskcheck is a very important tool for a project te**am, and there are many times when the project manager will build deskchecks into the organization's software process.

If a **work product does not need approval by a team but is still a critical part of the software process,** the project manager may require a deskcheck in order to ensure that it does not have defects.

Example Scenario of Deskcheck

For example, many QA teams employ automated test scripts, and it is usually necessary to ensure that the finished automated product actually covers the test plan that it was meant to automate. However, it would be unnecessary and very time-consuming to ask programmers, requirements analysts, project managers, and stakeholders to cross-reference each script with a test plan. A deskcheck can be used to verify that the script is correct, and to ensure that more than one QA engineer has taken responsibility for the quality of the script.

Deskcheck

Figure 5.2 contains an example of comments from a deskcheck that was used by a tester to find defects in an automation script. In this case, the entire review was performed via email: the author mailed the script to the reviewer, and the reviewer read it and emailed the comments back to the author. These comments are much simpler than the inspection log in Figure 5-1

Reviewer's name:	Sophie (senior QA engineer)
Author's name:	Dean (junior QA engineer)
Title:	Contract certification-automated test script #TP-491-A
Review date:	8/12/03
No. of review hours:	2

Location	Comments
Global	Script does not adequately copy databases in when the data changes.
Case 14	The test plan logs in as "Administrator;" this script logs in as "Admin."
Case 52, 53	What exactly is printed? It's not clear, you should be looking for specific data.
Case 61	The test plan tests all of the preferences, but the script only tests the first five.

FIGURE 5-2. Sample deskcheck comments

When do we need Deskcheck

Deskchecks can be used as predecessors to inspections. In many cases, having an author of a work product pass his work to a peer for an informal review will significantly reduce the amount of effort involved in the inspection.

Finally, **a deskcheck can be useful to review a work product that is not meant to be inspected at all.** For example, many requirements analysts will generate a discussion summary after a series of interviews and elicitation sessions. A deskcheck is useful in this case to help interviewees and other requirements analysts identify any information gathered during the interviews that is inaccurate or unclear. No approval is needed, and the requirements analyst is free to ignore any of the comments. The deskcheck simply serves as a checkpoint to ensure that mistakes are caught and addressed as early as possible.

Walkthroughs

What is Walkthroughs

A *walkthrough* is an **informal way of presenting a technical document** in a meeting.
Unlike other kinds of reviews, the author runs the walkthrough: calling the meeting, inviting the reviewers, soliciting comments, and ensuring that everyone present understands the work product.
It **typically does not follow a rigid procedure**; rather, the **author presents the work product to the audience in a manner that makes sense**. **Many walkthroughs present the document using a slide presentation**, where each section of a work product is shown using a set of slides.
Work products that are commonly reviewed using a walkthrough include **design specifications and use cases.**

When we need Walkthroughs

Walkthroughs are used **when the author of a work product needs to take into account the perspective of someone who does not have the technical expertise** to review the document.

Before the walkthrough, the author **should distribute any material that will be presented to each person** who will be attending. For example, if the walkthrough is done as a slide presentation, **copies of the slides** should be emailed to the attendees. If only a portion of that material is going to be covered, that should be indicated as well.

During the walkthrough meeting, the author should solicit feedback from the audience.

Guideline for successful Walkthroughs

Verify that everyone is present who needs to review the work product. This could include users, stakeholders, engineering leads, managers, and other interested people.

- Verify that everyone present understands the purpose of the walkthrough meeting and how the material is going to be presented.
- Describe each section of the material to be covered by the walkthrough.
- Present the material in each section, ensuring that everyone present understands the material being presented.
- Lead a discussion to identify any missing sections or material.
- Document all issues that are raised by walkthrough attendees

Code Reviews

Code Reviews

A *code review* is a special kind of inspection in which the team examines a sample of code and fixes any defects in it.

In a code review, a **defect is a block of code that does not properly implement its requirements**, that **does not function as the programmer intended**, or that is **not incorrect but could be improved** (for example, it could be made more readable or its performance could be improved).

In addition to helping teams find and fix bugs, **code reviews are useful for both cross-training programmers on the code being reviewed and for helping junior developers learn new programming techniques**

Pair Programming

- **Use Inspections to Manage Commitments**

  - **Diagnosing Review Problems**

    -**Problems Are Found Too Late**

    -**Big, Useless Meetings**

    -**The Indispensable “Hero**

Thank You