

Introduction

ESOF 326, Software Maintenance

ESOF 326 – 2019 Modifications

Reports:

- Titles in reports are improved and reports are more attractive
- Raw data for Overview Outcome Report is fixed (still broken in other reports)
- Overview Course Report can be generated as a csv file
- Dashes are used consistently in reports to indicate that no data is available in a cell
- Single file containing all report code (that was very hard to debug) is now broken up and one display format is used for all reports

ESOF 326 – 2019 Modifications

Script was added that gives commands for someone to issue to AbOut, with the expected results, to test each functional requirement.

ESOF 326 – 2018 Modifications

Security: now a malicious user can't go straight to a page and make changes. All the main pages require going through security. Implementation involves `includes\security.php` which is required in `includes\header.php`.

This design worked well for the main files. It doesn't work for the REST files, or when the reports are generated. Since the header is needed for generating reports they use `includes\header_unsecure`

ESOF 326 – 2018 Modifications

Login feedback: Before when a user has a valid CAS login, but isn't in the AbOut database, they were returned to the login screen with no error message. Now they get an error message.

Creating courses: Creating courses was broken (we never noticed) and is now fixed. It was a little tricky because reused files needed customization.

ESOF 326 – 2018 Modifications

Report help: Tool tips for the reports is better, and the explanation for items is better.

Report parameters: This form looks a little better.

Code comments: Code commenting is improved, although, it would be better if I went in, vetted the comments, and removed the duplicates and authorship.

SRS & SDD is improved

Lehman's Law of Declining Quality

System quality will appear to decline unless rigorously adapted to meet changes in the operational environment.

System is built on assumptions which the changing world will tend to invalidate.

Decline will be especially apparent in relation to alternative products that will come onto the market place based on more recently formulated assumptions.

Building Construction Analogy

When adding a room to an existing building:

“The architect and the builders must take care not to weaken the existing structure when additions are made. Although the costs of the new room usually will be lower than the costs of constructing an entirely new building, the costs per square foot may be much higher because of the need to remove existing walls, reroute plumbing and electrical circuits and take special care to avoid disruption the current site.”

Jones, page 295, quoted in T. A. Corbi, Program Understanding: Challenge for the 1990s

Different than Development

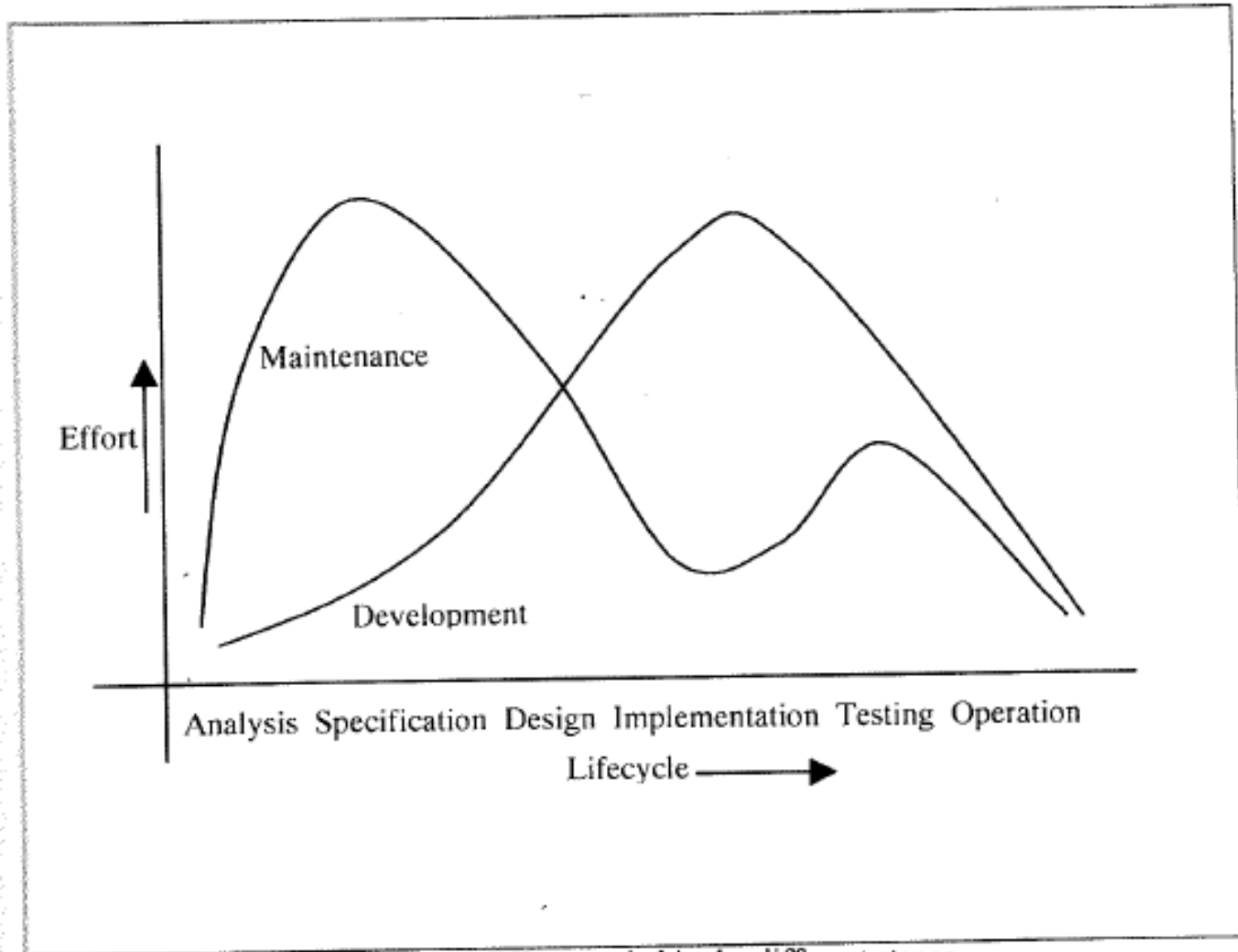


Figure 5.11 Effort needed in the different stages

Categories of Changes

1. Corrective change – initiated by defects in the software
2. Adaptive change – to accommodate changes in the environment of the software system
3. Perfective changes – change to expand the existing requirements
4. Preventative changes – undertaken to prevent system malfunctions

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