Knowledge-rich indexing of learning objects
Kabel, S.C.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
# Contents

1. **Introduction**  8
   1.1 **Background**  8
   1.2 **Problems with processes underlying re-use**  8
   1.3 **Key solution: index**  12
   1.4 **Position of this thesis**  12
   1.5 **Approach**  14

2. **Theoretical analysis of material handling processes**  16
   2.1 **Introduction**  16
   2.2 **Types of material**  16
   2.3 **Indexing framework**  20
   2.4 **Available annotation structures and indexing vocabularies**  23
   2.5 **The analysis process**  28
   2.6 **The storage process**  30
   2.7 **The retrieval process**  31
   2.8 **The re-use process**  32
   2.9 **Conclusions**  35

3. **The role of ontologies in the material handling processes**  36
   3.1 **Introduction**  36
   3.2 **Ontology types in a knowledge-rich annotation structure**  37
   3.3 **Using ontologies for analysis, indexing, design and retrieval**  45
   3.4 **IMAT: re-use of technical manuals in maintenance training**  48
   3.5 **Conclusions**  64

4. **Consistency in indexing with ontologies**  65
   4.1 **Introduction**  65
   4.2 **Consistency in indexing with flat value lists**  66
   4.3 **Consistency in indexing with structured value lists**  71
   4.4 **Conclusions**  78