Packaging checklist

**Category: Instructions for the replicating experimenter**

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| **Improvement** | **Improvement components** |
| Replication plan | * List of activities and dependencies * Estimation of times and resources by activity * General schedule of the replication |
| Design adaptation facilities | * Replicated and potential design alternatives * Basic concepts of experimental design * Review of the rigour of the design concept |
| Extension of the training material | * Increase in the number of solved exercises * Combination of the theoretical material used in different training sessions * Exercises for self-study |
| Precise definition of techniques | * References to accepted literature in the area * Specifications of opposing or dissenting views * Operational definition of the technique |
| Guidelines for preparing material | * Table of deliverables by design and number of subjects * Files for batch printing * Tips on material preparation |
| Session introduction | * Checklist for the replicating experimenter * Explanation of the procedures to be applied and material use * Introduction to programs or other objects |
| Description of the environment | * List of environment elements: instructions, materials, presence of facilitator * Description of the overall climate of the session |
| Treatment of questions from subjects | * Clarification of the reasons for not answering questions about techniques * Levelling of responses about the session procedure and experimental objects |
| Correctness guidelines | * Instructions on correctness * Examples of technique application and correctness |
| Definition of the response variable | * Definition of the response variable unit * Description of the elements to be accounted for * Calculation function or transformation for outputting result |
| Grading criteria | * Weight of the experiment grade with respect to total subject grade * Description of the grading scale and levels |
| Feedback session | * Presentation of the concepts of the completed exercise * Reporting of specific results to subjects * Reception of comments from subjects * Dissemination of experimental results |
| Analysis tools | * Definition of the analysis method * Spreadsheet for data representation * Statistical analysis tools * Interaction identification criteria |

**Category: Operational Material**

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| **Improvement** | **Improvement components** |
| Timed sessions | * Communication of the maximum session time for subjects * Short time limit (two- or three-hour sessions) |
| Program alternatives | * Inclusion of the program variants (equivalent to the analysed technique) * Program variants to prevent knowledge transfer |
| Technique upgrades | * Modification of the techniques according to the state of practice * Use of software tools combined with techniques |
| Session and data collection format | * Review of instructions for subjects and supplementary sheet * Simplification of forms and time measurement * Computer-administered session |
| Changes to objects | * Program upgrading (domain, UI, design) * Program and requirements debugging |

**Category: Experimental research process support**

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| **Improvement** | **Improvement components** |
| Replication reporting | * Replication template: identification, characterization, results and lessons learned * Modules added to LP for each replication |
| Support for results aggregation | * Inclusion of raw data from replications * File format for data (reusing the best analysis tool) * Guidelines for aggregating results |
| Guidelines for data exchange | * Guidance on authorship, property, use and reservation of rights * Linked experimentation protocols * Mechanism for protecting personal data |
| Support for evolving the experiment | * Log of replications and aggregations * References to study modules * Log of modifications to the baseline experiment and underlying theory * Description of changes |
| Theoretical groundwork | * General paradigm * Known relationships * Points for research |
| Communication instances | * List of proposed communication instances * Contact information from researchers |

**Category: Structural and usability improvements**

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| **Improvement** | **Improved Components** |
| Division into modules | * Identification of related components * Definition of dependencies * Independent evolution |
| Navigation and search | * Conventional structures (index, contents, sections) * Hyperlinks * Alternative navigation structures * Management of external references * Search engine |
| Completeness with respect to experimental processes | * Identification of the experimental process activities * Subdivisions of the document by activities |
| Integration of training material | * Separate module containing training material integrated into LP * Option of independent use of training facilities |
| Self-contained structure | * Single core structure * Grouping of different modules |
| Navigation and search | * Representation of main document in HTML * Use of recommended standards * Distributed access via HTTP |
| Step-by-step instructions | * Step-by-step instructions for replication activities * Separate descriptions for replication subroles * Non-prescriptive information for researchers |
| Visual enrichment | * Process diagrams * Graphs of results * Illustrative images or videos |
| Frequently asked questions section | * List of real questions and answers * Common problems and solutions * Themed list with gradual additions |
| Extension templates | * Templates for adding studies * Explanation of study descriptor fields |
| Version control structure | * Safekeeping of earlier versions * Change traceability * Replacement and alternative versions of experiment |
| Collaborative infrastructure | * Online repository reading and edition * Comments associated with LP components * Exchange forum between researchers |