

Assignment 4: Final Research Package

Complete Evidence-Based Design Research Brief

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Due: End of Week 12 (Final Object Fair)	
Weight: 40% of final grade	
Format: Complete research package with four components	
Submission: PDF + presentation materials via course portal	

Assignment Overview

A4: Final Research Package represents the culmination of your semester-long investigation into evidence-based design. Building on your A1 decision claim, A2 evidence map, and A3 test plan, you will present a complete research brief that provides actionable evidence for architectural decision-makers. This capstone assignment demonstrates **professional research competence** and **evidence-based design thinking** essential for contemporary practice.

Learning Objectives

By completing this assignment, you will:

1. **Synthesize semester learning** into a coherent research narrative
 2. **Provide actionable evidence** directly applicable to design decisions
 3. **Communicate findings** effectively to diverse professional audiences
 4. **Document reproducible methods** that others can verify and extend
 5. **Demonstrate research impact** on real architectural challenges
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Assignment Components

Your A4 Final Package contains **four integrated components** that work together to provide comprehensive decision support:

Component 1: Research Brief (Main Document)

Length: 8-12 pages

Audience: Primary stakeholders from your A1 analysis

Purpose: Complete evidence synthesis with clear recommendations

Component 2: Practice Case (Executive Summary)

Format: Two-slide presentation + 2-page memo

Audience: Busy practitioners and decision-makers

Purpose: Concise findings and immediate action items

Component 3: Object Card (Visual Summary)

Format: Single infographic/poster

Audience: General professional community

Purpose: Quick visual communication of key insights

Component 4: Reproducibility Capsule (Method Documentation)

Length: 3-5 pages + supplementary materials

Audience: Researchers and method replicators

Purpose: Complete method documentation for verification and extension

Component 1: Research Brief (Main Document)

Structure and Content

Executive Summary (1 page)

Decision Context - Restate your design object and decision claim from A1 - Summarize why this evidence matters to your stakeholders - Preview your main findings and recommendations

Key Findings - 3-5 bullet points summarizing your most important results - Confidence level for each finding (high/medium/low certainty) - Practical implications of each finding for design decisions

Recommendations - Specific actions your stakeholders should take based on your evidence - Decision thresholds or criteria they should apply - Areas where further evidence is needed before acting

Literature Foundation (1-2 pages)

Evidence Synthesis - Update and refine your A2 literature review - Integrate new sources discovered during your investigation - Highlight how your findings relate to existing knowledge - Identify where your results confirm, extend, or contradict prior research

Knowledge Contribution - What new evidence does your research provide? - How do your findings fill gaps identified in A2? - What questions do your results raise for future research? - How do your methods improve on previous approaches?

Research Method (2-3 pages)

Approach Overview - Refine your A3 method description based on full implementation - Explain methodological choices and their implications - Describe how pilot testing improved your final approach - Justify your method relative to alternatives

Data Collection - What data did you actually collect (vs. originally planned)? - What challenges did you encounter and how did you address them? - How did you ensure data quality and reliability? - What limitations affected your data collection?

Analysis Strategy - How did you process and analyze your data? - What analytical tools and techniques did you employ? - How did you handle uncertainty, missing data, or anomalies? - What validation checks did you perform on your results?

Results and Analysis (3-4 pages)

Primary Findings - Present your main results clearly with appropriate visualizations - Use tables, charts, and graphics to support quantitative findings - Include qualitative insights and unexpected discoveries - Organize results around your original research questions

Statistical Analysis and Uncertainty - Report confidence intervals, error bars, or uncertainty ranges where appropriate - Explain the practical significance (not just statistical significance) of your findings - Acknowledge limitations and potential sources of error - Discuss how sample size or scope affects generalizability

Comparative Analysis - How do your results compare to existing benchmarks or standards? - Which design alternatives performed best according to your criteria? - What trade-offs or compromises emerged from your analysis? - How sensitive are your findings to different assumptions or conditions?

Interpretation for Decision-Making - What do your results mean for your stakeholders' decisions? - What design strategies do your findings support or recommend against? - How confident should decision-makers be in acting on your evidence? - What additional information would strengthen confidence in your conclusions?

Recommendations and Implementation (1-2 pages)

Decision Framework - Provide clear criteria for when to adopt your recommendations - Specify thresholds, ranges, or decision rules based on your evidence - Address different scenarios or contexts your stakeholders might face - Explain how to weigh your evidence against other considerations

Implementation Guidance - What specific steps should stakeholders take to apply your findings? - What resources, expertise, or support would implementation require? - What

potential barriers or challenges should they anticipate? - How can they monitor or evaluate the success of implementation?

Future Research Priorities - What evidence gaps remain most important to address? - What methods would best generate needed additional evidence? - How could future research build on your findings? - What resources would future investigations require?

Component 2: Practice Case (Executive Summary)

Two-Slide Presentation

Slide 1: The Problem and Evidence

Visual Elements: - Clear photo or diagram of your design object - Key performance data or user experience findings - Comparison between alternatives (before/after, option A vs B)

Text Elements: - One-sentence problem statement - 2-3 key findings with confidence indicators - Clear performance metrics or outcomes

Slide 2: Decision Recommendations

Visual Elements: - Decision matrix, flowchart, or recommendation summary - Implementation timeline or process diagram - Contact information for follow-up

Text Elements: - Specific recommendations with decision criteria - Implementation steps and resource requirements - Next steps for stakeholders

Two-Page Memo Format

Page 1: Executive Summary

To: [Primary stakeholder group]

From: [Your name and credentials]

Date: [Submission date]

Re: Evidence-Based Recommendations for [Design Object]

Background (1 paragraph) Brief context for why this evidence was needed and how it was collected.

Key Findings (3-4 bullet points) Most important results with practical implications for decisions.

Recommendations (3-4 bullet points)

Specific actions to take based on evidence, with implementation priority.

Page 2: Supporting Details

Evidence Summary - Method overview and data collection approach - Sample size, scope, and quality indicators - Key limitations and uncertainty ranges

Decision Criteria - When to apply each recommendation - How to weigh evidence against other factors - What additional information might be needed

Implementation Support - Resources available for implementation - Contact information for follow-up questions - Timeline for updates or additional evidence

Component 3: Object Card (Visual Summary)

Design Requirements

Format: Single page, poster-style layout (portrait or landscape) **Resolution:** Publication quality (300 DPI minimum) **Style:** Professional, accessible to general architectural audience

Required Elements

Visual Identity

- Clear title and subtitle
- Your design object illustrated with high-quality photos or diagrams
- Consistent color scheme and typography throughout
- Professional layout with clear information hierarchy

Evidence Summary

- Key performance metrics or outcomes prominently displayed
- Before/after comparisons or alternative performance data
- Clear indication of evidence quality/confidence levels
- Visual representation of most important findings

Decision Support

- Clear recommendations with visual decision aids
- Implementation guidance or next steps
- Contact information for additional details
- References to full research brief

Method Transparency

- Brief description of research approach
- Sample size, scope, and timeframe indicators
- Data sources and collection methods
- Limitations or caveats clearly noted

Design Guidelines

- **Hierarchy:** Most important information should be largest and most prominent
 - **Balance:** Mix of text, graphics, and white space for readability
 - **Accuracy:** All data and claims must be supported by your research
 - **Accessibility:** Readable by diverse professional audiences without specialized knowledge
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Component 4: Reproducibility Capsule

Purpose and Scope

The Reproducibility Capsule enables other researchers to verify your findings, replicate your study in different contexts, or build on your methods. It provides complete methodological transparency and supporting materials.

Required Documentation

Method Protocol (2-3 pages)

Step-by-Step Procedures - Detailed protocols for each phase of data collection - Specific tools, software settings, and measurement procedures - Quality control checks and validation steps - Decision rules for handling edge cases or problems

Materials and Resources - Complete list of required tools, software, and equipment - Access requirements and permission processes - Time and resource estimates for replication - Skill requirements and training needs

Data Organization - File naming conventions and folder structure - Data collection templates and forms - Coding schemes for qualitative data - Database structure or data organization system

Implementation Guide (1-2 pages)

Adaptation Guidelines - How to modify the method for different contexts - What aspects are essential vs. adaptable - How to scale the approach up or down - Context-specific considerations and adjustments

Troubleshooting Guide - Common problems and solutions - Alternative approaches when primary methods fail

- Quality indicators for successful implementation - When to seek additional expertise or support

Validation Procedures - How to check data quality and method reliability - Comparison benchmarks or validation datasets - Peer review or external validation processes - Documentation requirements for credible replication

Supplementary Materials

Data Collection Tools - Survey instruments, observation forms, measurement protocols - Software code, scripts, or configuration files - Template letters for access requests or permissions - Consent forms or ethical approval documentation

Analysis Resources - Data analysis code or step-by-step analytical procedures - Visualization templates and reporting formats - Statistical analysis approaches and assumption checks - Interpretation guidelines and decision criteria

Example Materials - Sample data files (anonymized) with analysis examples - Completed forms, templates, or documentation examples - Photos or videos demonstrating procedures where helpful - Case study or pilot implementation as model

Differentiated Expectations by Program Level

Undergraduate Students

Research Brief: Clear findings with straightforward analysis and practical recommendations
Practice Case: Focus on immediate applicability with simple decision criteria
Object Card: Clean, accessible design emphasizing key takeaways
Reproducibility: Clear protocols suitable for peer replication

MArch Students

Research Brief: Professional-quality analysis suitable for consultant reports
Practice Case: Executive-level presentation with business case reasoning
Object Card: Portfolio-quality design demonstrating communication skills
Reproducibility: Industry-standard documentation suitable for professional use

PhD Students

Research Brief: Scholarly rigor with methodological contributions and statistical analysis
Practice Case: Policy-level recommendations with implementation strategies
Object Card: Research communication suitable for academic or professional conferences
Reproducibility: Publication-quality methods documentation for peer review

Assessment Criteria

Evidence Quality and Rigor (30%)

Data Quality - Did you collect reliable, relevant data using appropriate methods? - How well did you address limitations and potential sources of error? - Are your findings supported by adequate evidence?

Analysis Appropriateness - Did you use suitable analytical approaches for your data and questions? - How well did you handle uncertainty and alternative interpretations? - Are your conclusions justified by your evidence?

Methodological Transparency - Are your methods clearly documented and reproducible? - Did you acknowledge limitations and methodological choices? - Could another researcher verify or replicate your work?

Practical Relevance and Impact (25%)

Stakeholder Alignment - Do your findings directly address your stakeholders' decision needs? - Are your recommendations actionable and implementable? - How well do you understand the decision context and constraints?

Professional Applicability - Could practitioners realistically use your evidence and recommendations? - Do you provide appropriate guidance for implementation? - How well do your findings transfer to similar decision contexts?

Communication Excellence (25%)

Audience Appropriateness - Is each component tailored to its intended audience? - Do you use appropriate technical depth and professional language? - Are complex findings accessible to non-specialist decision-makers?

Visual Communication - Do your graphics, tables, and figures effectively support your findings? - Is your Object Card professionally designed and impactful? - Do visual elements enhance rather than distract from key messages?

Integration and Coherence - Do all four components work together as a unified package? - Is there clear narrative flow from problem through evidence to recommendations? - Are findings consistent across all components?

Research Contribution (20%)

Knowledge Advancement - What new evidence does your research contribute to the field? - How do your findings extend, confirm, or challenge existing knowledge? - What methodological innovations or improvements do you demonstrate?

Future Research Direction - How well do you identify priorities for future investigation? - Do you provide a foundation for others to build upon your work? - What broader implications do your findings suggest?

Common Excellence Indicators

Research Brief Excellence

- **Clear problem-solution narrative** connecting decision needs to evidence to recommendations
- **Appropriate confidence claims** that accurately reflect evidence quality and limitations
- **Professional presentation** suitable for stakeholder decision-making contexts
- **Methodological rigor** appropriate to program level and research scope

Practice Case Excellence

- **Executive accessibility** — busy professionals can quickly grasp key points
- **Actionable recommendations** with specific implementation guidance
- **Decision support** — clear criteria for when and how to apply findings
- **Professional credibility** — suitable for client presentations or policy briefings

Object Card Excellence

- **Visual impact** — compelling and memorable at poster or presentation scale
- **Information density** — maximum insight per square inch without cluttering
- **Professional design quality** — suitable for portfolio, conference, or publication
- **Accurate communication** — visually represents findings without distortion

Reproducibility Capsule Excellence

- **Complete documentation** — others can fully replicate your methods
 - **Practical guidance** — realistic implementation support with troubleshooting
 - **Methodological contribution** — advances best practices for evidence-based design research
 - **Quality assurance** — built-in checks for reliable implementation
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Timeline and Support

Weeks 6-11: Development Phase

Week 6-7: Complete data collection and initial analysis **Week 8-9:** Draft Research Brief with mentor consultation **Week 10:** Peer review, Practice Case development, Object Card design **Week 11:** Final integration, Reproducibility Capsule completion

Week 12: Object Fair Presentation

Format: 6-8 minute presentation + 4 minutes Q&A **Audience:** Classmates, instructor, external critics/practitioners **Materials:** All four components submitted + presentation slides

Support Resources

- **Individual consultations:** Wednesdays 4-6pm at KB722, or by appointment, and mentor meetings
- **Peer review sessions:** Structured feedback on draft materials
- **Technical workshops:** Support for analysis, visualization, and design
- **External critics:** Professional feedback at Object Fair event

Submission Requirements

- **Complete PDF package** with all four components
- **Presentation slides** used at Object Fair
- **Change log** documenting major revisions since A3
- **Self-assessment** reflecting on learning and research process

Remember: Your A4 Final Package demonstrates your development as an evidence-based design researcher. This is your opportunity to show how systematic investigation can improve architectural decision-making and contribute to professional knowledge.

The Object Fair is a celebration of your semester's work and a chance to share your findings with the broader community. Prepare presentations that communicate both your specific findings and the broader value of evidence-based design thinking.

Excellent research serves both immediate decision needs and long-term knowledge advancement. Your final package should demonstrate competence in both practical problem-solving and scholarly contribution to the field.