

Research-to-Practice How-to-Summarize Guide

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Purpose of this Document

This document is designed to help researchers communicate their research findings to practitioners in a way that maintains the essence and integrity of the research while simultaneously enabling practitioners to understand how the research findings might be appropriately used in practice.

Page 1

Section	Instructions	Examples
A. Title	<p>This title should be understandable to lay practitioners. It should also be framed to interest them. In other words, you may have to forgo some precision while aiming for engagement. It is not necessary that your title be in the form of a question, but such an approach may be worth considering.</p> <p>Word Limit: About 15 words.</p>	<p>"Do learning objectives have to be presented immediately before the targeted learning material to create learning benefits?"</p>
B. Area of Inquiry	<p>Provide a quick referent to help us understand your general area of inquiry.</p> <p>Word Limit: About 5 words.</p>	<p>"Learning Objectives" "Incentives" "Leadership Behavior"</p>
C. Search Keywords	<p>Provide words that can be used in a computer-based search.</p> <p>Word Limit: About 7 words.</p>	<p>"Learning Objectives" "Objectives" "Adjunct Questions" "Incentives"</p>

Page 2		
Section	Instructions	Examples
D. Research Questions	<p>In paragraph form, describe the research questions of interest.</p> <p>Your research is expected to ultimately have practical ramifications. Please frame your research question(s) in a way that non-researchers will easily understand.</p> <p>Although it is okay to use your title here, this section enables longer and more precise wording and multiple questions as well.</p> <p>Word Limit: About 25 words per question, but 15 or fewer is better.</p>	<p>"How does the length of delay between presentations of learning objectives and subsequent presentation of the relevant learning material affect learning outcomes? Or more specifically, Do learning objectives have to be presented right before the learning material to produce an effect?"</p>

Page 3		
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<p>E. Research Methodology (Summary)</p>	<p>In paragraph form, describe the basic elements of your research design. Use words that lay practitioners will understand.</p> <p>Word Limit: About 200 words for each separate experiment or study that is described (up to 500 words if three or more experiments or separate studies were conducted).</p>	<p>"We conducted two separate experiments. In the first experiment, two groups of learners (about 35 undergraduate students in each group) were provided with an online multimedia course on global warming (requiring about 30 minutes to complete). One group was provided with 5 learning objectives at the start of the course. The other group was provided with the same 5 learning objectives half way through the course. The learning objectives were only relevant to material in the second half of the course. One day after completing the online course all learners were surprised with a quiz on the course material, including questions on both the first and second half of the course. Quiz questions required learners to respond to cause-and-effect scenarios based on the course material."</p> <p>"The second experiment was similar but the materials focused on conflict-management skills and were used in a corporate-training situation with mid-level managers as learners (20 in each group). The final quiz was delivered one week after the learning was completed."</p>

Page 4		
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<p>F. Research Findings (Summary)</p>	<p>Using a bulleted list, outline about 1 to 7 major findings of your research.</p> <p>Use words that practitioners will understand, but augment those with necessary specifics (for example, statistics).</p> <p>Don't assume that your readers will know the meaning of statistical tests. For example, you should explain (1) that effect sizes demonstrate how large a difference there is between two comparison groups and (2) significant t-tests and anova's (etc.) demonstrate that the findings were unlikely to result purely by random factors.</p> <p>Word Limit: About 50 words per bullet, but 30 words or fewer is better.</p>	<ul style="list-style-type: none"> ▪ "Results showed that learning objectives presented closer in time to the targeted learning material were likely to produce about 25% better retention performance than learning objectives placed farther away (30% in Exp. 1 and 22% in Exp. 2)." ▪ "The comparison showed an average Cohen's <i>d</i> effect size of .8 (.92 in Exp 1 and .77 in Exp 2) Note that effect sizes of this magnitude are considered large, demonstrating that the comparison between "close" and "distant" learning objectives is important." ▪ "Two-tailed t-tests found significant differences in both experiments, with $p = .24$ in Exp. 1 and $p = .33$ in Exp. 2, suggesting that the differences in the groups are larger than would be expected by random chance."

Page 5		
Section	Instructions	Examples
<p>G. Research Weaknesses and Limitations</p>	<p>Using a bulleted list, outline about 1 to 5 major weaknesses or limitations of your research, along with a discussion of the extent to which they impact the generalizability of the findings. Include possible alternative explanations for your results.</p> <p>Word Limit: About 50 words per bullet, but 30 words or fewer is better.</p>	<ul style="list-style-type: none"> ▪ “Comparing learning objectives presented at the beginning of a multimedia course might not provide a fair real-world comparison. Perhaps learners have learned to ignore these types of initiating learning objectives. It might have been better to present them one-quarter into the course.” ▪ “30 minute multimedia courses may not generalize to real-world courses, many of which take 90 minutes or more.” ▪ “Using quizzes that came one day and one week after learning may not generalize to situations in which learners have to retain learned information for weeks or months.” ▪ “It might have been valuable to explore individual differences in how learners respond to learning objectives.”

Page 6		
Section	Instructions	Examples
<p>H. Relationship to Other Relevant Research</p>	<p>In paragraph form, describe how your research and findings relate to other research. In addition to providing a sense of the research and overall conclusions, specifically answer these questions:</p> <p>Are your findings consistent with other published research? Or do your results differ? What conclusions should we draw from this consistency/inconsistency?</p> <p>Are your findings consistent/inconsistent with practitioner experiences and/or practitioner research (for example, research done in a work setting not meant for publication).</p> <p>Word Limit: About 300 words</p>	<p>“Our findings—that learning objectives produced increased memory retrieval when presented close to the targeted learning material—are consistent with the few studies that have directly tested the effect (Jones, 1997; Rothkopf, 1966; Rothkopf & Kaplan, 1972).”</p> <p>Similarly, they are consistent with what might be expected based on some of the more general theoretical models on learning and cognition. For example, ever since Ebbinghaus (1896), we’ve known that learners forget information quickly and then gradually lose less and less over time (Underwood, 1959). Research on construct accessibility (Higgins and King, 1981; Bargh, 1990) suggests that environmental cues trigger working-memory attentional processes. So, taking these research threads together, we would expect that after learning objectives are presented to learners, they would be stored in long-term memory, where, rather quickly these constructs lose their memory accessibility and thus their potential to generate attentional processing of the type that would accelerate learning. To summarize, our findings are consistent with these general theoretical mechanisms.”</p>

Page 7		
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I. Additional Research Needed	<p>Using a bulleted list, outline about 1 to 5 research designs that are still needed to provide additional insights into the topic.</p> <p>Word Limit: About 50 words per bullet, 200 words overall.</p>	<ul style="list-style-type: none"> ▪ “To promote generalizability, it would be beneficial to replicate the study using other materials, other types of quiz questions, and researchers from other idea communities.” ▪ “It would be nice to use learning objectives that are interspersed within the text instead of massed altogether and vary the distance between each objective and the learning material to which it is relevant.” ▪ “Prequestions could be used in lieu of the learning objectives to determine if they have similar effects.”

Page 8		
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<p>J. Practical Recommendations</p>	<p>Using a bulleted list, outline about 1 to 5 practical recommendations that can reasonably be made based on the known research (including your research and the research of others).</p> <p>In answering this question, consider your research results within the context of other relevant research and consider the research paradigm’s concomitant limitations as well.</p> <p>DO NOT make practical recommendations if the research is not strong enough to warrant it. Comment on the relative strength of the recommendations. Also describe the boundary conditions that apply, detailing the situations in which the recommendation is applicable and the situations in which the recommendation is not likely to be applicable.</p> <p>Word Limit: About 150 words per recommendation, and 750 words altogether.</p>	<ul style="list-style-type: none"> ▪ “Based on the research, it may be advisable to present learners with learning objectives closer in time to the learning material than is done typically. Specifically, the current experiments found that a 15-minute delay between objectives and relevant learning material produced decreases in learning. On the other hand, we should maintain some skepticism about this recommendation at this point. The research in the current article—although using two distinct groups of learners (undergraduates and middle-aged managers) and two sets of learning materials—is the only research that directly tests this recommendation. Finally, this recommendation may only apply to online multimedia learning programs with durations of less than 30 minutes. There is reason to believe that the results will generalize beyond the materials used, but skepticism is appropriate until further research can demonstrate that directly.”

Page 9		
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K. Beneficiaries	<p>In paragraph form augmented with subheadings, describe (1) the professionals who may be best positioned to apply the practical recommendations and (2) the situations that the findings can most readily and appropriately be applied.</p> <p>Word Limit: About 75 words per recommendation, and 200 words altogether.</p>	<p><u>“Professionals Benefiting:</u> This research thread is most relevant to instructional designers, instructional writers, trainers, teachers, professors, and all other instructional professionals.”</p> <p><u>“Applicable Situations:</u> The practical implications are most applicable to contexts in which instruction can be designed to control the temporal delivery of the instructional material...”</p>
L. Value	<p>In paragraph form augmented with subheadings, describe the overall value of this research in terms of (1) its practical benefits, and (2) its theoretical or research benefits.</p> <p>Word Limit: About 75 words per recommendation, and 200 words altogether.</p>	<p><u>“Practical Value:</u> Learners’ attention tends to wander during learning and attention is key to encoding processes. If learning objectives can be better positioned to focus these limited attentional resources, learning outcomes should improve significantly.”</p> <p><u>“Research Value:</u> The research is designed primarily for practical purposes, but the findings support Paivio’s (1986) dual-coding theory in that...”</p>
M. Practical Implementations	<p>Using a bulleted list, outline about 0 to 5 practical applications that have already been undertaken based on your research or the research that you replicated. If the information is considered proprietary, describe the application in a way that does not violate identifying information. Comment on whether any program-evaluation research is planned by the users of the application.</p> <p>Word Limit: About 50 words per bullet, 200 words overall.</p>	<ul style="list-style-type: none"> ▪ “Skillhard, Inc. has begun using learning objectives to begin each segment of its online courses instead of using them only to begin the course. No follow-up research is planned.” ▪ “A California e-learning company developed a training course on food safety that utilizes interspersed learning objectives immediately before the relevant learning material. No follow-up research is planned.”

Page 10		
Section	Instructions	Examples
<p>N. Annotated Bibliography</p>	<p>Using a bulleted list augmented with meaningful subheadings, outline about 5 to 10 of the most important research articles related to your research. Include empirical and qualitative research as well as review articles, as appropriate.</p> <p>For each article provide (1) the citation (APA style preferred), (2) several sentences describing the research, its findings, and its conclusions, and (3) your assessment of the research's strength and importance.</p> <p>Word Limit: About 150 words per source, and about 1000 words all together.</p>	<ul style="list-style-type: none"> ▪ "Citation: Jones, B. (1997). A fictional research project on learning objectives that shows that the benefits of learning objectives fade as the length between the objectives and the learning material increases. <i>Journal of The Fictional Learning Sciences, 42, 145-172.</i> <p>Description, Findings, & Conclusions: Jones (1997) was the first study since Rothkopf's earlier efforts (Rothkopf, 1966; Rothkopf & Kaplan, 1972) to explore the timing of learning objectives. Jones (1997) compared objectives massed at the beginning of text-based learning materials to objectives interspersed throughout the learning material. She found that interspersed objectives outperformed the precourse massed learning objectives by significant amounts.</p> <p>Assessment of Strength & Importance: Jones (1997) conflates two variables: the amount of massing and the temporal distance between the objectives and the subsequent learning material. Therefore, we should be somewhat skeptical drawing conclusions from this study."</p>

Page 11		
Section	Instructions	Examples
O. Research Publication	<p>Using a bulleted list augmented with subheadings, answer the following questions:</p> <ol style="list-style-type: none"> 1. Is your research complete? Yes or No? 2. Is it fully described in an article? Yes or No? 3. Has your article been published? Yes or No? If Yes, provide your complete citation using APA style or detail the original published source so that others can get access to it without having to contact you directly. <p>If not yet published, where do you intend to publish it? List the name of the journal, the institution of the tech report or white paper, and/or the website if internet-published.</p> <ol style="list-style-type: none"> 4. Is it a (a) research article, (b) popular-press article, (c) some form of hybrid, or (d) published in some other way altogether? Please explain. 	<p>"1. Research Complete: Yes, our research was completed Fall of 2006."</p> <p>"2. Described in Article: Yes, our research is fully described in an article."</p> <p>"3. Published: Yes, our research was published in <i>Performance Improvement Quarterly</i> in the Fall of 2006. The full citation is Author, J. R., & Author, C. J. (2006). The fictional response to the timing of learning objectives. <i>Performance Improvement Quarterly</i>, 18(3), 27-41."</p> <p>"We also published an earlier report on the Internet. The citation for that report is, 'Author, J. R., & Author, C. J. (2006). <i>The fictional response to the allocated timing of learning objectives</i>. Retrieved January 15, 2006, from http://www.finstitution.com/techreport12.pdf"</p> <p>"4. Type of Article: Our article is a research article."</p>

Section	Instructions	Examples
<p>P. Contact Information</p>	<p>For each researcher, provide contact information, including:</p> <ul style="list-style-type: none"> ▪ Full Name ▪ Title ▪ Institution ▪ Address ▪ Phone ▪ Email 	<p>“Will Thalheimer, PhD President Work-Learning Research 2 Belmont Terrace Somerville, MA 02143 888-579-9814 will.thalheimer@work-learning.com”</p>