

The Role of Design Judgment and Reflection in Instructional Design

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Design

Instructional Design

Reflection

Design judgments

This chapter discusses the importance of design judgment in instructional design. It defines design judgment and distinguishes it from decision-making. The chapter also discusses the different types of design judgments that instructional designers make, and the factors that influence these judgments. Finally, the chapter provides guidance on how instructional designers can develop the skill to evoke strong design judgments.

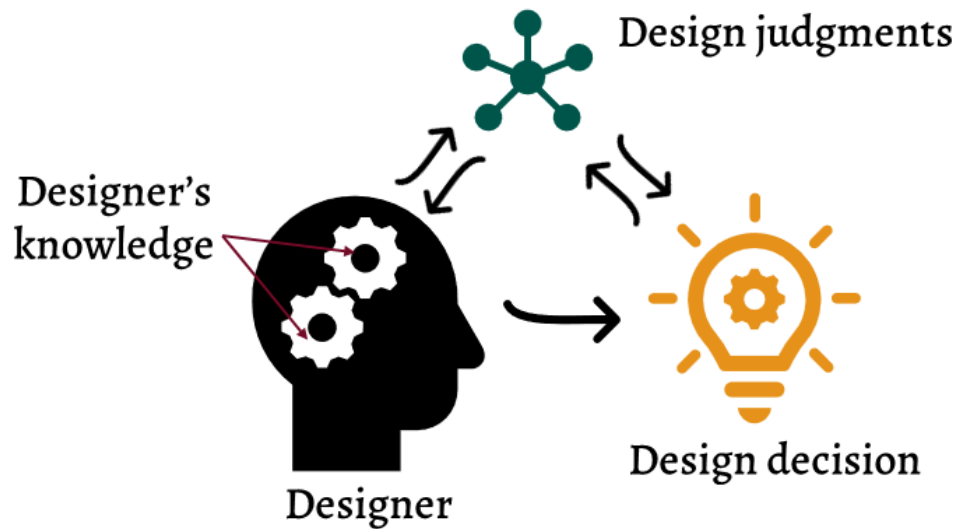
Introduction

As a student of instructional design (ID), or as a future ID practitioner, you will have to make many decisions that allow you to move forward in your design work. Such decisions will be informed in part by the particular situation you are dealing with, influenced by precedent design experience ([see more about design precedent here](#)), and inflected with your values and ideals. Making decisions is a fundamental human capacity. When designing, designers make decisions specific to design. The capacity to make solid design decisions is what distinguishes excellent designers from mediocre designers. So how can designers make solid decisions? The answer is through evoking good design judgments and constantly reflecting on their design work.

What is Design Judgment?

When designers face complex situations—a constraint, a problem with a client or another design stakeholder, a block in the design process—they need to make design judgments to reduce the complexity of the situation or solve the issue that has been encountered. Depending on the situation, a specific design judgment is invoked to make design decisions. In the area of general design theory, Nelson and Stolterman (2012) have identified design judgment as “essential to design. It does not replicate decision making but it is necessary” (p. 139). In this definition, the authors distinguish judgment from decision-making. Design judgments for them are the means to achieve “wise action” (p. 139), or—in other words—good design decisions. In this way, designers can think about design decisions as the “what and how,” of design, whereas design judgments have to do with the “why” a design decision has been made (see Figure 1).

Figure 1



Design judgments rely on different types of logic than rule-based systems. For example, imagine you have been tasked to design an instructional module to be delivered online. You are now faced with the choice of making this instructional module in the form of video, or text, or text with visuals and a video. Eventually, you will make a decision about which form the instructional module will take. That is the design decision. What allows you to make such a decision are your design judgments (e.g. preference for videos over text, based on constraints you perceive in the design project or your past history as a designer). Design judgments are based on your own knowledge. This knowledge cannot be separated from you, the designer, but it is not arbitrary either. Your appreciation of media and understanding of time and tools are disciplined, based on intuitive but very rational logic, generated from “the particularity or the uniqueness of a situation” (Nelson and Stolterman, 2012, p. 141).

Designers' Design Judgments

Nelson and Stolterman (2012) have proposed a construct comprising eleven design judgments that designers invoke. A summary of these design judgments is available in Table 1. We, as authors, recommend that you read more in-depth about these design judgments in Nelson and Stolterman's (2012) book, [The Design Way](#).

Table 1

General Summary of Design Judgments and Examples

Design Judgment	Definition	Example of Design Judgment in Action
Core	Designer's own value or thinking that can lead to invoke all other above design judgments	Designer advocates and insists on a designing discussions activity because they firmly believe that learning is interaction

Instrumental	Selecting and using design tools/means to reach established design goals	Drawing icons using a digital tool or using a paper and pencil, or selecting to use a MAC vs. a PC for design work
Framing	Defining the boundaries of the design project by emphasizing its focus and outcomes	Deciding whether to design an academic course, a workshop, a performance-support handout, etc.
Default	Generating “automatic” response to a situation without hesitation, and without too much thinking	Asking an SME to meet for a design project kick-off meeting because that is the first thing you do in all of your design projects, no matter what
Deliberated Offhand (DOH)	Recall of previous successful default judgments, consciously	Emailing an SME about a first meeting and providing them with options of when to meet and whether the meeting is face-to-face or online
Appreciative	Emphasizing certain aspects of a design, and backgrounding others	Appreciating the work a media developer has done but not emphasizing the challenging relationship they had with other project’s stakeholders
Quality	Finding out the match/mismatch between aesthetic norms/standards and the particular proposed design artifacts	Discussing the quality of a slide deck presentation with a critical eye and through referencing branding guidelines of the organization and/or aesthetic design norms in regards to colors, visuals, and typeface, such as CARP principles
Appearance	Assessing the overall quality of the design	Examining the overall path of a learning experience in a course design, and stating whether it feels cumbersome, boring, clunky or smooth/friendly
Navigational	Considering a path/direction to follow in completing a design task	Consider inviting an external SME to provide expertise about a specific subject area that the current/available SMEs lack so you can fill a content gap that other SMEs and designers identified
Connective	Making connections of objects together for the specific design situation	Considering how a design of a lecture in an academic course is related to another learning activity/assessment, and whether there is a connection and or alignment between these two design objects or not
Compositional	Bringing all elements of design together to form a whole	Considering how to place learning objects within structures of modules to form a whole, complete, and smooth 16-weeks long academic course, in a way that lectures and discussions precede exams and major assignments

As a student of instructional design, there are the three of these design judgments that play a critical role in

instructional design practice, and that will be examined more completely.

The first is *core judgment*—“buried deep within each individual, but unlike off-hand judgments, they are not easy to access” (p. 154). Designers invoke core judgments often in an unconscious manner because it stems from designers’ own values or thinking that can be revealed through “why” questions (e.g., a designer advocates and insists on designing discussion activities because they firmly believe that learning is interaction—that is their core judgment). Core judgment is behind every other design judgment. It is, in a sense, our human capacity to have tacit knowledge, beliefs, and own philosophies. Designers invoke core design judgment to make design decisions, including those based on prior experience.

The second is *instrumental judgment*—“interaction with their [designers’] materials and the tools” (p. 152). Instrumental is used here to mean ‘instrument’ and not to mean ‘important.’ Designers invoke instrumental judgments to decide on which design tools to use or not, and how to use them for their design projects (e.g., drawing icons using a digital tool or using a paper and pencil). This judgment is one of the most invoked judgments as it is concerned with design tools—all kinds of means that designers use to design, regardless of their form—and because design tools encompass almost every design activity. Design tools could be abstract/theoretical or tangible, analog, or digital. If you are curious, you can read more about design tools in instructional design practice in Lachheb and Boling (2018).

The third is *framing judgment*—“defining and embracing the space of potential design outcomes ... [it] forms the limits that delineate the conceptual container” (Nelson & Stolterman, 2012, p. 148). In evoking this design judgment, designers discuss the goal of their design project (e.g., designing an academic course, a workshop, a performance-support handout, etc.) in order to frame what the design project is about. Framing judgment is also invoked throughout the progress of a project that involves deciding what is important to focus on next.

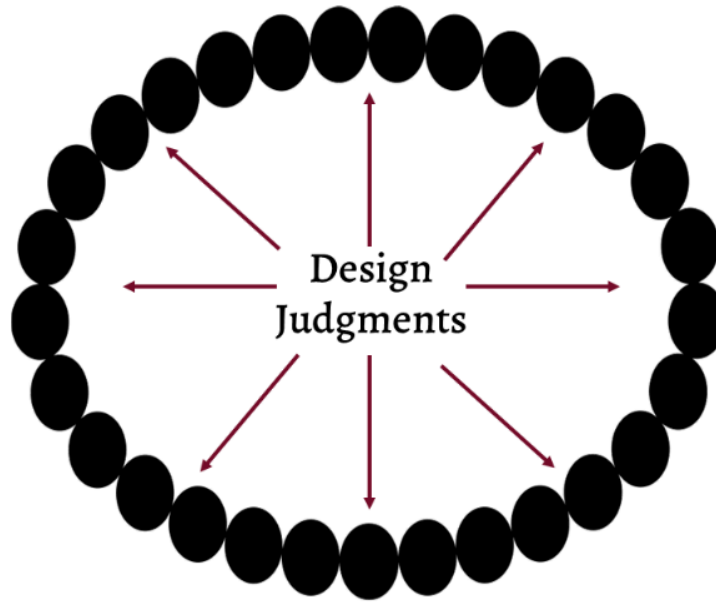
Guidance to Develop and Invoke Design Judgments

You might be asking now, “What design judgments should I make? Which ones are the best design judgments? How will I know? How does a designer learn to make good design judgments?” These are very legitimate and important questions. Frankly, these questions are what actually spark many research studies on design practice; answering them is not as straightforward as one sometimes wishes.

First, it is important to think about these design judgments as not isolated units, but rather like pearls that are connected to each other with strings. If you take one pearl and you hold it up, then the other ones just hang as a cluster underneath because they are connected to each other (E. Stolterman, personal communication, November 18, 2013). Designers often invoke a number of design judgments together—always interconnected and often overlapping (see Figure 2). That being said, as you are practicing design, you will be making these design judgments at all times, most of the time unconsciously. Now that you read about them, you can think about them in a conscious manner and watch for when a design judgment you invoke does not lead to the desired result.

Figure 2

How Are Design Judgments Interconnected?



Second, all of these design judgments are important to help you navigate the complexities of your design projects. However, as mentioned earlier, the most important design judgments are core, instrumental, and framing. Core design judgment is connected to every design decision—there is always a personal belief behind every design decision you make. Instrumental design judgments are concerned with design tools—every aspect of your design projects involve using design tools of all kinds. Framing design judgment allows you to set up the whole design project for success or failure, from the very beginning—if you frame your design project incorrectly, there will be money and resources wasted, not to mention upset clients and supervisors. Third, knowing which design judgments are you evoking, what design judgment you should or you should not evoke, and how you learn to make good design judgments are always matters of deliberate reflection on your design practice—a topic addressed in the second part of this chapter.

Finally, as a designer, you will face many situations when you feel uncertain; you can make several design judgments but you are not sure what is the right choice to make. Uncertainty is a hallmark of the design profession and our advice is to embrace it, not to be afraid of it. We, the authors, also advise you to trust your instinct and remember your rigorous design training. Additionally, taking time to think and studying your design context should equip you with powerful insights to help you make the right choice (e.g., using the [instructional theory framework](#) to inform your design judgments). You can also seek mentorship and consulting from senior designers to help you deal with uncertainty, and ultimately make good design judgments.

Examples of Design Judgments Invoked by Instructional Design Students

Some researchers in the field have studied design judgments and how students of instructional designers invoke them (Demiral-Uzan, 2015; 2017, Korkmaz & Boling, 2014). From the studies of Demiral-Uzan (2015; 2017), the authors provide the following examples of design judgments invoked by ID students as they are designing instruction during graduate-level instructional design courses.

Example 1: An instructional design student was asked to design an instruction for their final project. This student decided to design a course for advanced Chinese ESL learners about business emails. This student invoked a framing and navigational design judgment because when asked by the researcher how they decided to design this instruction, they said: “How I came up with that specific topic and why is that, very simple. I mean, what’s the most practical, more effective easy to me, something that I am at least familiar with, something I already know” (adapted from Demiral-Uzan, 2017).

Example 2: A group of instructional design students came together to discuss their group project in their instructional design course. Their discussion was focused on the content of the instruction and the flow of information they wish to present in the instruction. A researcher observed and recorded their interaction. Each statement that a student says points to design judgments being invoked and overlapped:

Student A: Should this go first or after the overview? (Appearance, Quality and Connective design judgment)

Student B: This comes after the content on my part. (Default, Appearance, Quality and Connective design judgment)

Student A: Your approach is different than mine, which is okay. For learners to understand what networking is, the definition of networking will come here first, then tell and show them what is networking is not. (Appreciative, Core, Quality and Compositional design judgment)

(adapted from Demiral-Uzan, 2015).

What is Design Reflection?

Reflection is the personal and the internal building of knowledge through considering and interpreting one's experiences or beliefs (Tracey et al., 2014). It is usually a method to solve problems, as well as to define and refine one's beliefs, values, and perspectives. Reflecting on your design work, its qualities, process, and outcomes, allows you to become aware of your tacit knowledge and learn from your design experience. Donald Schön—a prominent design scholar and a design educator—has identified two types of design reflections (Schön, 1983): (1) Reflection-in-Action; and (2) Reflection-on-Action.

Reflection-in-action is that internal dialogue that designers have as they are engaged in solving a particular design problem, or while using a specific design tool. For example, you could be working on designing a training program. You face a complex situation where the capacity of the software you are using to develop the training materials is not allowing you to create a specific interaction you wish to create. You could ask yourself something like "How do I get around this? Should I use another software or try to think of another way to create the interaction the client and I want to see?" This self-questioning is essentially the internal dialogue you could have, which constitutes "reflection-in-action." You could have this internal dialogue without being aware of it, as most of us think and reflect unconsciously and in silence. Eventually, reflection-in-action allows you to establish a ground to make decisions and work toward a resolution of the problem (Schön, 1983).

Reflection-on-action has to do with looking back at past design experiences, to make sense of what happened, what worked well, what did not work well, why taking one design approach seemed to be better than the other, etc. Many designers recognize reflection-on-action as what happens in design "post-mortem" meetings—a dialogue between designers who reflect upon their experiences, practices, and beliefs. Reflection-on-action dwells upon subjective interpretations of events, situations, and ideas. It is personal and can be hard to express. Nevertheless, this type of reflection is proven to be an effective practice to learn from past designer experience, so future design experiences are optimized. Additionally, when designers experience failure, only reflection-on-action could allow them to process that failure, learn from it, and essentially become aware of future modes of failure that might come their way.

An Example of a Design Reflection by an Instructional Design Student

Kaminski et al. (2018) has illustrated several design reflections written by ID students. One example is shared in this chapter, and you are encouraged to read more—as shared by Kaminski et al. (2018).

"One of the hardest lessons I learned from the instructional design course (and still struggle with), is articulating my decisions and actions onto paper. The best advice I received from Dr. Kaminski is to approach instructional design with the mindset that you are making something that another instructor (without any prior experience) can recreate. I think my difficulty comes from the many steps that I personally revisit and parts that I revise with research and experience. It

is hard to describe all those directions that my mind takes to come to a final product. The picture I drew allows me to provide an abstract visual of all those steps. The student is the 'key,' the center of my purpose. As the 'doorknob, it is my responsibility to make sure all the working parts are in place so that the individual can open the door to knowledge. Begin by identifying the goals of the training event, analyze the learner, and the method for instruction, and verify the performance objectives. Start on outer edges and spiral toward the middle, and then through evaluation back out and spiral back in again until you get through the door. Goals are set – look at the learner and environment to make it work. Facilitators need to address all the pieces and parts of the classroom component, so the facilitator ensures the student has what they need to open the door."

As you can see in this example, the student expressed how hard it was for them to make design decisions. The student reflected on what they believe to be the appropriate design moves, how to begin, and what the design should be focused on. Toward the end of the reflection, the student expressed a set of values and ideals—core design judgments.

Design Judgments and Reflection: Recommendations for Instructional Design Students

The Reflection Journal

Some designers keep a journal. Some designers turn parts of their journal into a [blog or a website](#) where they reflect on their design work publicly. Commit to a journal in the format you prefer—a simple notebook, a Google document, a blog, a video, a podcast. Start your first entry about the last design project you completed in class and address the following prompt (adapted from Tracey et al, 2014):

Describe a time when you felt totally uncertain while working on this design project. Try to remember how you felt and what was the greatest challenge(s) you faced because of the uncertainty you felt. What actions did you take to overcome such uncertainty? How did it go? Why did you take certain actions and not other actions? What did you believe to be happening vs. what actually happened? Knowing that you will feel uncertain in future design projects, how do you feel about becoming a designer?

Start writing the reflection post using descriptive language. You should not worry about grammar and typos at this stage. Let the words and thoughts flow and make their way from your head to the journal. Pay attention to how you felt and what thoughts you had at the moment. Think about if someone reads this reflection, will they understand what was going on in the design project? Will they get to feel how you felt? Don't limit yourself to formal writing. Write as you think and speak. Once you complete this first entry, share it with your ID faculty or another designer if you feel comfortable.

The following are some ways to document design reflections:

- Pick what you want to focus on for each reflection—a challenge with a designer, a moment of design failure, a harsh critique from a client, or an SME; you pick.
- Describe your design actions by addressing the Five Ws (What, When, Where, Why, Who).
- Elaborate on the "Why" part so you can reveal the design judgments you made that led to these design actions.
- Speculate on the "Why" when speaking about other's actions, unless you are certain.
- Conclude with what you have learned from this design project—what you will not forget to do next time? To what extent this design project will be similar to future projects you anticipate?

Exploring Your Core Design Judgments

People are surrounded by designs they use every day, and some they cannot live without. Commit to a week of noticing and collecting—through photographs—designs that you appreciate and designs that you do not like at all. These could be the items you use every day, such as your phone, the showerhead in your bathroom, a specific app, or a favorite frying pan in your kitchen, or anything else. Challenge yourself to notice as many designs as possible. Such design could include instruction or performance support materials around you (e.g., a flyer that teaches people how to wash

their hands or the instructional book that comes with IKEA furniture). Take about an hour or more to write down notes about each design—why you appreciate it and why you do not. Keep asking yourself “why do I like/dislike this?” and record your answers. Repeat this activity until you cannot think of any more answers to. For example, the authors appreciate public libraries. We like them because we find the books we like to borrow and not buy, they are accessible to us, they are free, they are diverse, and they provide quiet places for us to concentrate. We can say more why we like public libraries, but essentially we like public libraries because *we believe in the noble cause of public goods, and public libraries represent such a cause.*

Now examine your answers to the “why” questions and try to think about how such answers represent values you hold. These could be transparency, ease of use, elegance, democratic, accessible, inclusive/exclusive, soft, strong, and so on. These values constitute your core judgments and influence all kinds of design judgments you make. You may not be able to access all of them completely, but you are aiming to heighten your awareness of what your design values really are. Once you have spent some time on this exercise, consider revisiting it in the future to see any change you might notice in terms of the values you have—write a reflection post on such change. You can focus the noticing experience on specific types of designs (e.g., phone apps), or you can mix designs together that you see belong to each other (e.g., instructional posters and cooking books). Essentially, noticing designs and why you appreciate them will become a somewhat automatic habit for you. By these means you can question and refine your judgement across a whole career.

Additional Information

Ways to document design judgments and decisions:

- Document your design through documents and project management tools—you will have an audit trail at the end of the project that helps you or anyone else to trace back what design decisions you have made.
- Use the margins of such documents to add comments/thoughts and explanations on design decisions you have made.
- Archive written conversations (emails, chats, etc....) between you and other design stakeholders that include design decisions (and most likely your “defense” or such decisions).
- Leverage your design reflections, notes, and design documents to write a design a case which you can publish in [the International Journal of Designs for Learning \(IJDL\)](#).

Conclusion

You may have heard the common wisdom that to become a better professional, you should engage in at least 10,000 hours of practice in your profession. While there is truth in the advice that many, many hours of practice are required to develop expertise, the authors are also confident in an additional claim that there is more to expertise than just putting in a certain number of hours. Without deliberately reflecting on your design actions and the design judgments that lead to those actions, not even 10,000 hours of instructional design practice will be enough to make you an expert designer. Explicitly reflecting on your design judgments, in addition to reflecting on your practice, is what will help you become a more engaged and expert designer. Make reflection on your design judgments an intentional aspect of your efforts to develop your growing competence as a member of the instructional design profession.

References and Suggested Readings

Boling, E., Alangari, H., Hajdu, I. M., Guo, M., Gyabak, K., Khlaif, Z., Kizilboga, R., Tomita, K., Alsaif, M., Lachheb, A., Bae, H., Ergulec, F., Zhu, M., Basdogan, M., Buggs, C., Sari, R., & Techawitthayachinda, R. I. (2017). Core judgments of

- instructional designers in practice. *Performance Improvement Quarterly*, 30(3), 199–219.
<https://doi.org/10.1002/piq.21250>
- Boling, E., & Gray, C. M. (2015). Designerly tools, sketching, and instructional designers and the guarantors of design. In B. Hokanson, G. Clinton, & M. Tracey (Eds.), *The design of learning experience: Creating the future of educational technology* (pp. 109–126). Springer. <https://doi.org/10.1007/978-3-319-16504-2>
- Cross, N. (2001). Designerly ways of knowing: Design discipline versus design science. *Design Issues*, 17(3), 49–55.
<https://doi.org/10.1162/074793601750357196>
- Dabbagh, N. & Blijd, C. W. (2010). Students' perceptions of their learning experiences in an authentic instructional design context. *Interdisciplinary Journal of Problem-Based Learning*, 4(1), 6–29. <https://doi.org/10.7771/1541-5015.1092>
- Demiral-Uzan, M. (2017). *The Development of Design Judgment in Instructional Design Students During a Semester in Their Graduate Program* (Doctoral dissertation, Indiana University).
- Demiral-Uzan, M. (2015). Instructional design students' design judgment in action. *Performance Improvement Quarterly*, 28(3), 7–23. <https://doi.org/10.1002/piq.21195>
- Ericsson, K. A. (2006). Protocol analysis and expert thought: Concurrent verbalizations of thinking during experts' performance on representative tasks. *The Cambridge handbook of expertise and expert performance*, 223–241.
- Gray, C. M., Dagli, C., Demiral-Uzan, M., Ergulec, F., Tan, V., Altuwaijri, A. A., Gyabak, K., Hilligoss, M., Kizilboga, R., Tomita, K. & Boling, E. (2015). Judgment and instructional design: How ID practitioners work in practice. *Performance Improvement Quarterly*, 28(3), 25–49. <https://doi.org/10.1002/piq.21198>
- Kaminski, K., Johnson, P., Otis, S., Perry, D., Schmidt, T., Whetsel, M., & Williams, H. (2018). Personal Tales of Instructional Design from the Facilitator's Perspective. In B. Hokanson, G. Clinton & K. Kaminski (Eds.), *Educational Technology and Narrative* (pp. 87–101). Springer. <https://doi.org/10.1007/978-3-319-69914-1>
- Korkmaz, N., & Boling, E. (2014). Development of design judgment in instructional design: Perspectives from instructors, students, and instructional designers. *Design in Educational Technology* (pp. 161–184). Springer, Cham.
https://doi.org/10.1007/978-3-319-00927-8_10
- Lachheb, A., & Boling, E. (2018). Design tools in practice: instructional designers report which tools they use and why. *Journal of Computing in Higher Education*, 30(1), 34–54. <https://doi.org/10.1007/s12528-017-9165-x>
- Nelson, H. G., & Stolterman, E. (2012). *The design way: Intentional change in an unpredictable world* (2nd ed.). The MIT Press.
- Schön, D. (1983). *The Reflective practitioner: How professionals think in action*. Temple-Smith.
- Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. John Wiley & Sons.
- Smith, K. M., & Boling, E. (2009). What do we make of design? Design as a concept in educational technology. *Educational Technology*, 49(4), 3–17.
- Stolterman, E., McAtee, J., Royer, D., & Thandapani, S. (2009). Designerly tools. <http://shura.shu.ac.uk/id/eprint/491>
- Tracey, M. W., Hutchinson, A., & Grzebyk, T. Q. (2014). Instructional designers as reflective practitioners: Developing professional identity through reflection. *Educational Technology Research and Development*, 62(3), 315–334.
<https://doi.org/10.1007/s11423-014-9334-9>

Yanchar, S. C., South, J. B., Williams, D. D., Allen, S., & Wilson, B. G. (2010). Struggling with theory? A qualitative investigation of conceptual tool use in instructional design. *Educational Technology Research and Development*, 58(1), 39–60. <https://doi.org/10.1007/s11423-009-9129-6>



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