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The Research Hypothesis: A Guide with Examples from Theses

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Reviewed by Eunice Rautenbach, DTech · November 2026

Abstract

A research hypothesis is usually a single sentence, but in a quantitative study that sentence shapes the whole design. A vaguely worded hypothesis can be read as supported by almost any result. This article defines a research hypothesis as a specific, testable prediction of what a study will find, based on earlier research and stated before the data are collected. It sets out four qualities of a good hypothesis (specificity, testability, grounding in prior research and statement in advance), distinguishes the hypothesis from the research question, and describes the main types: null and alternative, directional and non-directional, and simple and complex. It explains why data can support a hypothesis but cannot prove it, and why a non-significant result does not show that the null hypothesis is true. It then presents a procedure for writing a hypothesis and examines hypotheses quoted from five completed theses in information science, business, hotel administration, human development and English, including one hypothesis followed through to a result that did not support it and one study that rightly states none. The article is intended for students and early-career researchers planning a study, and for the educators who teach research methods.

Keywords: research hypothesis; what is a research hypothesis; hypothesis in research; research hypothesis definition; research hypothesis examples; examples of research hypotheses; scientific hypothesis definition; open educational resource

Suggested citation: Jansen, D. (2026). *The research hypothesis: A guide with examples from theses*. Grad Coach. https://doi.org/10.5281/zenodo.24556665

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1. Introduction

In a quantitative study, the research hypothesis is often the shortest passage in the proposal and the one on which the most depends. The design, the sample, the measures and the statistical analysis are all chosen to test it. If the hypothesis is vague, almost any result can be read as support for it, and the study then tests nothing in particular. Supervisors, committee members and examiners therefore tend to read the hypotheses early and closely.

Two difficulties recur in student work. The first is wording: a hypothesis that names a topic and a vague verb ("affects," "has an impact on") without saying who is studied, what is measured and which result is expected. The second is reasoning about results: describing a hypothesis as "proved," or treating a result that is not statistically significant (Section 5.1) as evidence that there is no effect. Both are easier to avoid once the definition and the logic of testing are clear.

This article is written for students and researchers planning a study, and for those who teach research methods. Section 2 defines a research hypothesis. Section 3 sets out four qualities of a good hypothesis, and Section 4 distinguishes the hypothesis from the research question. Section 5 describes the main types of hypothesis and the role of the null hypothesis in testing. Section 6 gives a procedure for writing a hypothesis. Section 7 examines hypotheses quoted from five completed theses, and Section 8 describes studies that do not need a hypothesis at all. An invented study of sleep and examination scores is used throughout Sections 2 to 6 to illustrate each point; it is labeled as illustrative wherever it appears.

2. What a Research Hypothesis Is

A **research hypothesis** is the answer that a study is expected to give, stated as a specific prediction that the data could contradict. It is based on earlier research or established theory, and it is written down before any data are collected. The term "scientific hypothesis" is often used in the same sense.

In everyday speech, a hypothesis can mean almost any hunch. In research the term is more disciplined. The Understanding Science project at the University of California Museum of Paleontology corrects the misconception that hypotheses are guesses: "Hypotheses are reasoned and informed explanations" (University of California Museum of Paleontology, n.d.-b). Strictly, the hypothesis is the explanation (for example, that more sleep improves memory), and the prediction is what would be observed if the explanation were correct. In a thesis or dissertation, the sentence presented as the hypothesis is usually the prediction, and the explanation behind it is developed in the literature review.

Box 1 contrasts a hunch with a research hypothesis for the illustrative sleep study.

Box 1. A hunch and a research hypothesis for the same illustrative study.

A hunch: Sleep impacts academic performance.

A research hypothesis: First-year undergraduates who sleep at least eight hours a night will, on average, score higher on a standardized exam than those who sleep less than eight hours.

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The hunch leaves both of its terms undefined: it does not say whose sleep, how much of it, which kind of performance, how performance is measured or which way the two are related. With terms that loose, almost any pattern in the data could be read as support. The research hypothesis names the population (first-year undergraduates), the two variables (hours of sleep and exam score) and the expected result (higher average scores among students who sleep longer). It also makes clear what would count against it: students who sleep less scoring the same or higher. Figure 1 labels each of these parts and links four of the hunch's open questions to them.



Figure 1. The parts of a research hypothesis, and four questions a hunch leaves open (illustrative).

3. Qualities of a Good Research Hypothesis

A good research hypothesis is specific, testable, grounded in prior research and stated before the data are collected. Each quality is discussed in turn below.

3.1 Specificity

A hypothesis should leave no doubt about who or what is being studied and what result is expected. In practice this means naming the population, the independent and dependent variables, and the predicted relationship between them: a difference between groups, an association between two measures, or a change over time.

Vague verbs make the expected result the hardest part to identify. "Affects" and "has an impact on" do not say what change is expected. Where the literature supports it, a verb that commits the study to a direction is clearer: higher, lower, positively related, negatively related. A direction is not always appropriate, however (Section 5.2), and a non-directional hypothesis can still be specific provided its population and variables are defined.

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3.2 Testability

A hypothesis is testable when some possible result would contradict it and the data needed to check it can be collected. The idea is associated with the philosopher Karl Popper, for whom what makes a theory scientific is falsifiability, the possibility that some observation could contradict it, so a theory that fits every conceivable observation is not science (Thornton, 2026, Section 2). A statement such as "Getting more sleep may or may not change a student's exam score" is not testable, because every possible result is consistent with it. The Understanding Science project notes that when scientists call an idea falsifiable, they usually mean something like testable: an idea "about which we could gather evidence to help determine whether or not the idea is accurate" (University of California Museum of Paleontology, n.d.-a).

Testability has a consequence for how results are reported. Data can support a hypothesis or count against it, but a single study does not settle the matter. As the same project puts it, "science cannot once-and-for-all prove any idea to be false (or true for that matter)" (University of California Museum of Paleontology, n.d.-a). A results chapter should therefore state that the results support the hypothesis, never that they prove it.

3.3 Grounding in prior research

A hypothesis should follow from what earlier studies or an established theory suggest, which is why it usually appears after, or alongside, the literature review. A statement can be specific and testable and still have no basis. Ghasemi et al. (2025, p. 8) contrast a hypothesis about fiber intake and the risk of type 2 diabetes, which is rooted in the literature, with the claim that "wearing green socks prevents diabetes," which has no basis in established physiological mechanisms. Each hypothesis should therefore be accompanied by a short statement of reasoning: the findings that lead the researcher to expect the predicted result.

3.4 Statement before data collection

A hypothesis is written before the data are collected. Kerr (1998) gave the name HARKing (hypothesizing after the results are known) to the practice of presenting a hypothesis formed after seeing the results as if it had been formed in advance. He also presented survey data suggesting that some forms of it are widely practiced and widely seen as inappropriate. Ghasemi et al. (2025, p. 2) describe HARKing as a questionable research practice that produces hypotheses that are always confirmed, and so precludes falsification. A hypothesis rewritten to match the data cannot fail.

Some researchers file their hypotheses and analysis plan publicly before the study begins, a practice known as **preregistration**. Nosek et al. (2018) argue that preregistration separates analyses that test predictions from those that are developed after the outcomes are seen, and so improves the credibility of findings. Not every program requires it. Even where it is not required, a hypothesis should keep the same wording wherever it appears in a thesis, and a surprising result belongs in the discussion rather than in a revised hypothesis.

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4. Hypotheses and Research Questions

A research question asks what a study sets out to find; a hypothesis is the predicted answer to it, stated in advance. Ghasemi et al. (2025) put the distinction as follows:

> A research question raises ideas about how certain concepts may be related, while the hypothesis is a predicted, evidence-based answer to that question.
>
> Ghasemi et al. (2025, p. 2)

The question comes first. For the illustrative sleep study, the research question might ask whether first-year undergraduates who sleep at least eight hours a night score differently on a standardized exam from those who sleep less. The hypothesis answers it in advance by predicting that they will score higher. A single research question can give rise to more than one hypothesis, and a common practice is to write at least one hypothesis for each research question, or for each part of one. The reverse does not hold: as Ghasemi et al. (2025) observe, "all research projects have a question, but not all have a hypothesis" (p. 3). Section 8 discusses the studies that need only research questions.

5. Types of Research Hypotheses

Hypotheses are usually classified in pairs. Three pairs matter in most theses: null and alternative, directional and non-directional, and simple and complex. Table 1 defines each type and gives an example from the illustrative sleep study.

Table 1. Three pairs of hypothesis types, with examples from the illustrative sleep study.

Type	What it states	Example
Null (H0)	That there is no difference or relationship	There is no difference in mean exam scores between students who sleep at least eight hours and those who sleep less.
Alternative (H1)	The difference or relationship the researcher expects to find	Students who sleep at least eight hours will score higher on average than those who sleep less.
Directional	Which way the difference or relationship runs	Students who sleep longer will score higher.
Non-directional	That there is a difference or relationship, without stating its direction	Students who sleep longer and those who sleep less will differ in their mean scores.
Simple	A relationship between one independent and one dependent variable	Students who sleep at least eight hours will score higher than those who sleep less.
Complex	A relationship involving more than one independent or dependent variable	Students who sleep at least eight hours and drink no more than one cup of coffee a day will score higher than those who sleep less and drink more.

The pairs overlap: the alternative hypothesis in Table 1 is also directional and simple. A hypothesis can be described by one type from each pair. The definitions of simple and complex hypotheses follow Ghasemi et al. (2025, p. 9), who also describe a fourth pair: associative and causal. An **asso-**

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ciative hypothesis proposes an association between variables, and a **causal** hypothesis proposes an effect of the independent variable on the dependent variable (Ghasemi et al., 2025, p. 9). A causal hypothesis needs a design that can support a causal conclusion, usually an experiment.

A note on labels: in Table 1, H1 denotes the alternative hypothesis. In the list of hypotheses in a thesis, H1, H2 and H3 are usually just numbers, and Section 7.5 shows that even "H0" can be used as a number.

5.1 The null hypothesis and the logic of testing

The **null hypothesis** (H0) is the claim that a statistical test looks for evidence against. Usually it states that there is no effect, difference or relationship, although it can also specify a fixed value other than zero (Ghasemi et al., 2025, p. 9). The **alternative hypothesis** is the effect that the researchers aim to detect, which is why it is sometimes called the research hypothesis (Ghasemi et al., 2025, p. 9).

A test measures how far the data lie from what the statistical model (every assumption behind the test, the null hypothesis among them) predicts. The p-value expresses how unusual the observed data would be if all of those assumptions held. More precisely, it is the probability, under those assumptions, of a test statistic (the measure of that distance) equal to or greater than the one obtained (Greenland et al., 2016). By convention, a result with p below .05 is called statistically significant, and the null hypothesis is rejected. A significant result supports a non-directional research hypothesis; a directional one is supported only if the difference also runs in the predicted direction.

The reverse does not hold: a non-significant result does not show that the null is true. Greenland et al. (2016) list among common misinterpretations the belief that a p-value above .05 shows that there was no effect. A large p-value means only that the data are not unusual under the model, and the null is only one of many hypotheses compatible with the data. When the null hypothesis cannot be rejected, the more accurate description of the research hypothesis is therefore "not supported," rather than "rejected" or "disproved." Usage in theses varies. Two of the theses examined in Section 7, Kadoma (2026, p. 29) and Luong (2025, p. 88), describe hypotheses that were not supported as "rejected," and readers of such reports should take the term in that sense.

Most theses state the alternative hypothesis and leave the null implied, unless the program's template asks for both. The null is the statistical counterpart of the alternative, and the test evaluates it whether or not it is written out.

5.2 Directional or non-directional

A directional hypothesis predicts which way a difference or relationship runs; a non-directional hypothesis predicts only that one exists. Ghasemi et al. (2025, p. 9) note that a directional hypothesis is the riskier claim but more convincing if confirmed, and that the choice depends on theoretical considerations. They also cite the view that a non-directional hypothesis should generally be used unless there is reasonable justification for a directional one (Ghasemi et al., 2025, p. 9). In practice, a directional hypothesis is appropriate when earlier research points one way, and a non-

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directional one when studies genuinely disagree or give little basis for a prediction. A non-directional hypothesis chosen only to avoid committing to a prediction is likely to be questioned by an examiner.

Some textbooks call these one-tailed and two-tailed hypotheses, after the statistical tests that look for a difference in one direction or in either. The hypothesis and the test are chosen separately: a directional hypothesis does not by itself oblige a researcher to use a one-tailed test, and the choice of test should be justified on its own terms and agreed with the supervisor.

6. Writing a Research Hypothesis

Writing a hypothesis means turning a research question into a claim and then checking the claim against the four qualities in Section 3. The following order of work is practical:

1. **Start from the research question.** Write at least one hypothesis per question or part of one.
2. **Review what earlier studies found.** The literature indicates whether to expect a difference or relationship, and in which direction.
3. **Draft the sentence.** Name the population, the variables and the expected result.
4. **Identify a result that would contradict it.** Tighten the wording until such a result can be named.
5. **Fix the wording before collecting data.** Add the null hypothesis if the program requires it.

Steps 4 and 5 are what make a hypothesis worth testing. Writing the hypothesis is only part of the path from question to result. Figure 2 follows the illustrative sleep study further, from its research question through the test to the results that would and would not support the hypothesis. The result that would count as support is fixed before any data are collected.

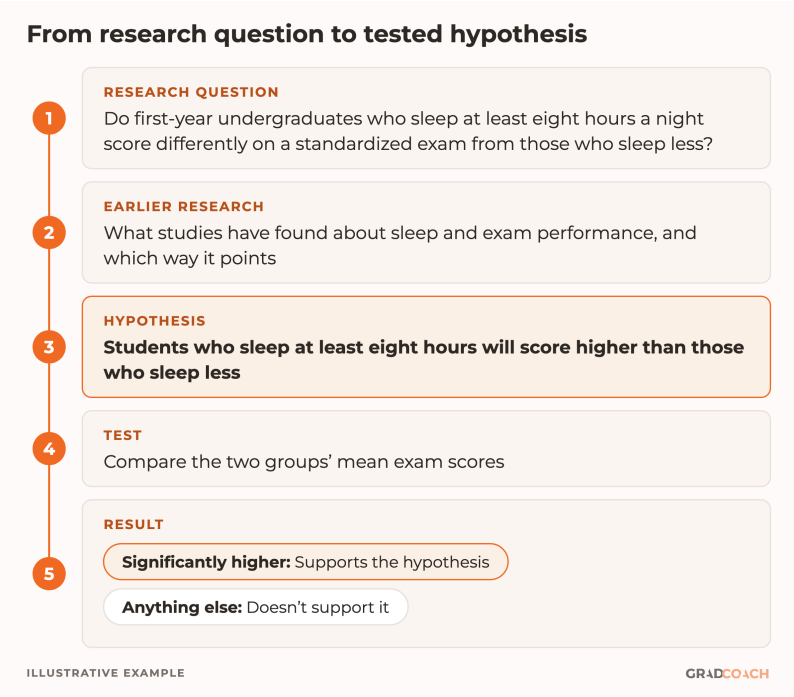


Figure 2. From research question to tested hypothesis, in five steps (illustrative).

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Once the hypotheses are set, they shape the rest of the methodology: the data to be collected, the sample required and the statistical test. Each of these choices should be traceable to a hypothesis or research question.

7. Hypotheses in Published Theses

Examples written to illustrate a definition, such as the sleep study, are tidier than real hypotheses. This section examines hypotheses quoted from five completed theses, all openly licensed, each showing a different structure. Each extract is quoted verbatim with its printed page number. The commentary after each extract, and Box 2, are by the author of this article; the weaker and stronger versions in Box 2 are invented for illustration and are not taken from the theses.

7.1 A directional hypothesis

The first example comes from a doctoral thesis at Lincoln International Business School that examined whether consumers in Vietnam intend to collect online orders from collection-and-delivery points (CDPs) rather than receive them at home. The first of its hypotheses reads:

> H1: Price value (PVA) is positively related to CDPs adoption intention (ADT)
>
> Luong (2025, p. 70)

The hypothesis names both variables and abbreviates them, so that they can be followed through the analysis, and it states a direction: "positively." That word allows the study to be wrong in a specific way. Luong tested this hypothesis and eight others with multiple regression (a method that estimates how several predictors together relate to one outcome); price value was a significant predictor in each of the three regression approaches the thesis reports, and H1 was supported, while H2, H3 and H8 were not (Luong, 2025, pp. 88, 91). Box 2 sets a reworded version of this hypothesis beside the weaker wording often found in first drafts.

Box 2. A weaker and a stronger version of a directional hypothesis (invented for illustration).

Weaker: Price value has an impact on adoption intention.

Stronger: Perceived price value is positively related to the intention to adopt collection-and-delivery points.

The weaker version could fail only if there were no relationship at all, since a positive and a negative relationship would both count as "an impact." It therefore predicts much less than the stronger version.

7.2 Competing hypotheses

Where the literature genuinely disagrees, a study may state competing predictions and let the data decide between them. A master's thesis in hotel administration examined whether a partnership with a brand of contrasting personality helps or harms a hotel brand. After reviewing the literature, the author reached a mixed prediction: consumers might like such an alliance because it is surprising and innovative, or dislike it because the two brands seem too unlike each other to be-

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long together (Cai, 2022, p. 15). The thesis therefore proposed "two competing sets of hypotheses" (p. 16). One set (H1a and H2a) predicts that the partnership improves attitudes toward the hotel brand; the other (H1b and H2b) predicts that it does not. In the extract, the focal brand is the hotel brand and the partner brand is its ally (Cai, 2022, p. 13); "sincere" and "exciting" describe brand personality, which Aaker (1997, as cited in Cai, 2022, p. 4) defines as "the set of human characteristics associated with a brand." The first hypothesis in each set reads:

> H1a: Partnering with an exciting partner brand improves the attitude toward a sincere focal brand.
>
> ...
>
> H1b: Partnering with an exciting partner brand does not improve the attitude toward a sincere focal brand.
>
> Cai (2022, p. 16)

Stating both predictions is a legitimate response to mixed literature, and is more transparent than choosing one side and ignoring the evidence for the other. The lettering (H1a, H1b) signals that the two answer the same question. The uncertainty is explained in the text that introduces the hypotheses, while each hypothesis remains a clear statement.

The example also shows a difficulty with any hypothesis stated in the negative. H1b has the form of a null hypothesis, and a test of no difference cannot confirm it in the way that a significant result supports an alternative. In the study, attitude toward the hotel brand after exposure to the partnership was marginally higher than before, with $p = .087$, and the thesis reports this as "supporting H1b" (Cai, 2022, p. 22). Under the reasoning of Section 5.1, a result of this kind shows that H1a was not supported; it does not show that the partnership made no difference, because the data are also compatible with a small improvement (Greenland et al., 2016). A study that states a competing hypothesis of no effect should therefore plan in advance what result would count as support for it.

7.3 Group differences and moderation

The Luong (2025) thesis ends the hypotheses of its first empirical study with two, H10 and H11, that concern groups of consumers rather than predictors:

> H10: Antecedents toward CDP are significantly different across CDP experience groups.
>
> H11: Antecedents toward CDP are significantly different across income groups.
>
> Luong (2025, p. 74)

These are non-directional group-difference hypotheses. They predict that the levels of the antecedents (the factors expected to influence adoption intention, such as perceived price value, compatibility and complexity) differ between groups, without saying which group will score higher. The thesis tested them with multivariate analysis of variance (MANOVA), which compares the groups' mean scores on several outcome variables at once, here six of the antecedents (Luong, 2025, pp. 80, 91). Income groups did not differ ($p = .820$; p. 93). For CDP experience, all four multivariate statistics give $p = .050$, which the thesis treats as a significant difference, and observability was the only antecedent that differed between the groups on its own (Luong, 2025, pp. 96–97). The thesis then ran a second, two-way analysis of CDP experience and income together. In that model,

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CDP experience made a significant difference across the antecedents (p = .030), and experienced consumers scored higher on three of them: compatibility, observability and social influence (Luong, 2025, pp. 100–101, 105). On that basis the author concludes that the results "partly support" H10 (p. 107). The one-way result still shows why a p-value of exactly .050 needs care, since by the rule in Section 5.1 it is not below .05.

A hypothesis of this kind is sometimes confused with a moderation hypothesis, which makes a different claim. Memon et al., following Dawson, give the statistical definition: "moderation is where a relationship between an independent variable and a dependent variable changes according to the value of a moderator variable" (Dawson, 2014, as cited in Memon et al., 2019, p. ii). A moderation hypothesis therefore predicts that a relationship is stronger, weaker or reversed for some groups or conditions, not merely that the groups differ in their average scores. A doctoral dissertation in human development and family science states one:

> H4: Family strengths will moderate the association between depressive symptoms of adolescents and their parents and adolescents' mental health care utilization, such that the association will be more negative under high levels of familism values, parental warmth, and greater time with family.
>
> Reyes (2026, p. 97)

The hypothesis names the moderator (family strengths), the relationship it is expected to change (between depressive symptoms and mental health care use) and the direction of the change. Moderation hypotheses are often where a quantitative study adds to what is known, because they specify for whom, or under what conditions, an established relationship holds.

7.4 A set of hypotheses that builds an argument

A single hypothesis is rarely the unit that an examiner judges. What matters is whether the set adds up to the question the study asks. The Reyes (2026) dissertation, a longitudinal study of Mexican-origin adolescents and their parents, states the following hypotheses before the moderation hypothesis quoted above:

> H1: Mothers', fathers', and adolescents' depressive symptom trajectories will be positively associated with mental health care utilization (see Figure 15).
>
> H2: Familial strengths will be negatively associated with adolescents', mothers', and fathers' depressive symptoms trajectories; and
>
> H3: Familial strengths will be positively associated with adolescents' mental health service utilization directly and indirectly through depression symptoms (see Figure 16).
>
> Reyes (2026, pp. 96–97)

Read in order, each hypothesis adds something that the next one needs. Table 2 summarizes what each contributes.

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Table 2. What each hypothesis adds to the set in Reyes (2026, pp. 96–97).

Hypothesis	What it adds
H1	Links depressive symptoms in the family to mental health care use, the outcome that H3 also predicts
H2	Introduces the protective factor: family strengths are expected to go with fewer depressive symptoms
H3	Connects the two: family strengths are expected to relate to mental health service use both directly and indirectly, through depressive symptoms

H3 states the question the study cares about most: whether family strengths relate to mental health service use directly, indirectly or both. Its indirect path, however, runs through the two links that H2 and H1 set out: from family strengths to depressive symptoms, and from depressive symptoms to service use. H1 and H2 make that path testable one step at a time, so the set, not H3 alone, carries the argument. A useful check for any set is to remove one hypothesis and ask whether the argument changes. If it does not, that hypothesis is probably not needed.

7.5 A label to read with care

The same dissertation opens its list of hypotheses with one labeled H0:

> H0: Adolescents' depression symptoms from early adolescence to early adulthood are expected to relate bidirectionally with parents' depressive symptoms, with stronger associations from mother-to-adolescent versus father-to-adolescent (see Figure 14).
>
> Reyes (2026, p. 95)

Despite its label, this is not a null hypothesis. A null hypothesis states that there is no effect or relationship, whereas this one predicts a bidirectional relationship between adolescents' and parents' depressive symptoms and expects it to be stronger from mothers to adolescents than from fathers to adolescents. The label is a number in a list that starts at zero, and the accompanying Figure 14 is captioned "Bidirectional Association of Parent-Child Depression (H0)" (Reyes, 2026, p. 96). The example matters because students often model their own hypotheses on published theses. A reader who meets "H0" in a list should check what the statement predicts before copying the convention.

7.6 From research question to result

The last example follows a hypothesis through to its result. A doctoral dissertation in information science contains three studies; the first examined whether errors in automatically generated subtitles change how viewers judge a speaker. It builds on earlier work showing that speakers with non-standard accents tend to be judged as less credible, and asks whether subtitle errors add to that disadvantage (Kadoma, 2026, p. 12). Its research questions and hypotheses read:

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> RQ1 How do subtitle errors impact the evaluation of the speaker and the content?
>
> RQ2 How does the speaker's accent impact their evaluation when subtitle errors occur?
>
> We hypothesize that:
>
> H1: Speakers and their content will be negatively impacted when subtitle errors occur.
>
> H2: Speakers with non-Standard American English (non-SAE) accents will receive more negative evaluations than speakers with Standard American English (SAE) accents.
>
> Kadoma (2026, p. 12)

Each hypothesis lines up with one research question and states a direction. On its own, "impacted" is the kind of vague verb discussed in Section 3.1, but "negatively" gives it a direction that the experiment can test. The hypotheses are incomplete in two respects. Neither names a population, which is given only in the methods section, and H2 omits the condition in RQ2, "when subtitle errors occur." Since a hypothesis may be quoted without its methods section, it is safer to name the population and keep the question's conditions in the hypothesis itself. The study design was approved by the university's institutional review board (its research ethics committee) and preregistered on the Open Science Framework (Kadoma, 2026, p. 13), the practice described in Section 3.4.

Subtitle errors lowered viewers' evaluations of both the speakers and the content. The thesis reports of the speaker evaluations that "These results support H1" (Kadoma, 2026, p. 23), and found the same pattern for the content (p. 24). For H2, the planned analysis found no significant effect of accent on speaker evaluations ($p = .604$; Kadoma, 2026, p. 23). The author describes speakers with the two accents as "equally penalized (leading us to reject Hypothesis 2)" (p. 29). Following Section 5.1, the result shows that the study did not find sufficient evidence of a difference between the accent groups; it does not show that the groups were evaluated identically (Greenland et al., 2016).

The thesis discussion offers one possible explanation for the H2 result. All of the audio was generated with an artificial intelligence voice service (Kadoma, 2026, pp. 14–15), and the author notes that the voice in the Standard American English condition "may not have sounded fully American" (Kadoma, 2026, p. 29). An exploratory analysis (one not planned in advance) that added viewers' perceived subtitle quality to the model did find an effect of accent, but in the opposite direction to H2: speakers with Standard American English accents received lower evaluations (p. 26).

A hypothesis that is not supported is still a finding, and it shows that the hypothesis was worded so that it could fail. The appropriate response is the one taken here: to report the result plainly and to use the discussion to consider why it may differ from what earlier research led the researcher to expect.

8. When a Study Does Not Need a Hypothesis

Not every study needs a hypothesis. Ghasemi et al. (2025, p. 3) note that hypotheses cannot be formulated for purely descriptive studies, and that in areas where little is known, developing a hypothesis may not be feasible. Exploratory and descriptive studies are therefore guided by research questions alone.

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Hypotheses belong mainly to deductive research, where the question comes out of the literature and the data are gathered to test a theory or the hypotheses derived from it. Inductive research reverses the order: the researcher collects and analyzes data first and develops theory from what emerges, so the research question can start out less precise (Hurst, 2023). Much qualitative research is inductive in this sense, and a prediction made in advance could narrow what the researcher notices in the data. In a mixed methods study, hypotheses are usually stated for the quantitative component only.

A doctoral dissertation in English illustrates a study guided by research questions alone. Through a participatory study with 11 community organizers in Appalachia, it asks:

> What narratives and knowledges emerge from community organizers working to address issues that arise during a time of economic transition?
>
> Carlson (2019, p. 17)

The question asks what emerges. The study does not yet know the categories it will find, and a prediction would commit it to categories before meeting its participants. A hypothesis would not strengthen this study; it would conflict with its design. A rough guide follows from the contrast. If the expected answer can be stated as a relationship between measured variables, and the analysis that would test it can be described in advance, a hypothesis is appropriate. If the answer will take the form of themes or narratives rather than estimates, research questions are sufficient.

Some program templates include a heading for hypotheses whether or not the design calls for them. A hypothesis added only to fill such a heading is rarely mentioned again after the methodology chapter, and an examiner is likely to notice. Where a study does not need one, the better course is to ask the supervisor whether the research questions can take its place.

9. Conclusion

A research hypothesis is a specific, testable prediction of what a study will find, based on earlier research and stated before the data are collected. It names the population, the variables and the expected result, and it is worded so that some possible result would contradict it. A hypothesis is the predicted answer to a research question, and every study has questions while only some need hypotheses. The null hypothesis is what a statistical test evaluates. Rejecting it supports the research hypothesis, provided that, for a directional hypothesis, the result also runs in the predicted direction. Failing to reject it does not show that the null is true, so an unsupported hypothesis is described as not supported rather than disproved. The theses examined here show the range of forms a hypothesis can take: a directional prediction, competing predictions for a disputed question, group-difference and moderation hypotheses, a set that builds an argument, and a hypothesis followed honestly to a result that did not support it. They also show a qualitative study that is right to state none. In each case, the test of a well-written hypothesis is the same: a reader should be able to say, before the data arrive, what result would count against it.

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