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HOW TO MASTER VERB TENSE IN THE INTRODUCTION SECTION?

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How to master verb tense in the Introduction Section?

Edited by Ozy Abram Chief Editor at Uni-edit

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Why is working with tenses challenging?

Working with tenses in English academic writing is one of the most challenging aspects for non-native speakers of English (NNSE). One reason for this is that there is often no equivalent, or no direct equivalent, in the writer's native language. Different tenses have different implications for meaning, especially in the context of a literature review, and textbooks often do not explain these. Many textbooks, teachers, and journal reviewers oversimplify the usage and meaning of verb tenses. Also, some reviewers may advocate the use of a particular tense because their journal prefers it, but that does not necessarily mean that style is universally preferred.

How can you improve this aspect of your writing? Firstly, read this chapter and complete the exercises at the end of it. Secondly, pay attention to tense when you read papers written by native speakers. Thirdly, when working with English-speaking academics, try asking them questions about their use of tense in their papers. With these three approaches, taken together, you will be able to make incremental improvements in your use of verb tenses, which will make your research writing easier to read and comprehend, and therefore more likely to get through a peer review.

However, keep in mind that, verb tense usage is an aspect of academic writing that even native speakers of English can take years to master, so don't lose heart if you continue to find it challenging! Keep practicing, observing, and questioning, and you will improve.

Tense in the Introduction Section

Your Introduction sets the stage for your research, by providing your readers with an overview of the background upon which your study is built. It can be challenging to identify what to include and what to leave out of the Introduction. Did you know, though, that the way you present the details you choose to include can change the meaning, tone, and connotations of what you write?

There are many slightly different ways of writing about previous research, and each one conveys a different message to the reader about how the author feels about this research. You can learn to use these different methods to make your writing more interesting, engaging, and convincing.

Consider these two versions of a paragraph of text. Each includes the same facts, but uses different ways of presenting them. Can you spot the instances of simple past tense (4 places), simple present tense (up to 10 places), and present perfect tense (3 places)?

Paragraph Version 1:

Although it is well recognized that eating fruit is good for you (e.g. Browne et al. 1978; Jones et al. 1982; King and Johnson 1984), the optimal quantities and proportions of each type of fruit are much debated (e.g. Whyte and Greene 1986; Linden et al. 1988). Apples are generally accepted to be the best source of iron (Smythe et al. 1992) and oranges are known to have the highest vitamin C content (Davidson 1963). However, some authors argue that eating mangos (Orchard et al. 1972) and grapes (Vintner 1987) too often can have negative effects on overall health, and can also lead to the development of intolerances (Emdee et al. 2007).

Paragraph Version 2:

Many studies have shown that eating fruit is good for you (e.g. Browne et al. 1978; Jones et al. 1982; King and Johnson 1984). However, some authors (e.g. Whyte and Greene 1986; Linden et al. 1988) have debated the optimal quantities and proportions of each type of fruit. Smythe et al. (1992) have shown that apples are the best source of iron, and Davidson (1963) reported that oranges have the highest vitamin C content. However, Orchard et al. (1972) argued that eating mangos too often could have negative effects on overall health, and Vintner (1987) said the same of grapes. Emdee et al. (2007) even suggested that overconsumption of these fruits can lead to the development of intolerances.

Can you spot the differences between these two paragraphs? Almost all of them relate to the use of different tenses when reporting previous findings. For example, after reading the opening sentence of Version 1, how do you feel about eating fruit in general -- do you believe that it is good for you, or are you not sure yet? Does this change when you read Version 2? What about apples in particular -- which version makes you feel that they are definitely a good source of iron?

When I read Version 1, I am confident that eating fruit is good for me, and that apples are the best source of iron. However, when I read Version 2, I'm not as sure; although the evidence that fruit is good for me comes from several studies, it seems to be something that is still being debated. I'm even less sure about apples being the best source of iron; after all, only one study seems to have shown that.

This chapter will review these differences in detail, and in doing so introduce you to some of the techniques you can use to be more persuasive and expressive in your Introduction

Introduction vs. Literature Review: one and the same thing?

In this chapter, I repeatedly refer to both the Introduction Section and the literature review. It may seem that I use the terms interchangeably, but although they overlap, they are not synonymous.

The Introduction Section is the first section of the main text of an article, and it typically contains both a literature review and a statement about the current study.

The literature review gives the necessary background to the present study by reviewing previously published papers that set the context. It covers what has been found out and what we do not yet know, i.e. the gaps in current knowledge. It usually particularly highlights the gap in knowledge that the present study attempts to fill. Some of the background may include an ongoing debate between different research groups in the field.

The statement about the current study is at minimum a statement of the aims and/or hypotheses of the study. Some papers also include a brief summary of the main approaches and findings of the study here (although many journals discourage this practice).

Some elements of the literature review may be more appropriately included in the Discussion Section than in the Introduction. Although the studies might be mentioned briefly in the

Introduction, their specific findings might be discussed and compared alongside the present study's findings in detail in the Discussion.

In this chapter, I will mainly address issues of tense in the literature review specifically, and will focus less on tense in the statement, since that is usually much less complicated. Since you may wish to include some aspects of your literature review in your Discussion Section, though, you should also consider the points in this chapter when you write your Discussion Section.

Use one tense or many tenses in the Introduction Section

Several different types of tense

In the Introduction section of academic articles, several different tenses are commonly mixed:

- Simple past tense,
- Present perfect tense,
- Past perfect tense, and
- Simple present tense.

The following sections will discuss each of these in detail.

Meanings and implications of different tenses

Tenses have both a direct, straightforward meaning, and a somewhat hidden, or subtle, connotation. Subtle in this context means "so delicate or precise as to be difficult to analyze or describe" (https://en.oxforddictionaries.com/definition/subtle). This is true of many statements we can make in English (and doubtless in all languages).

For example, consider four versions of a simple statement:

- 1. "I went to England" (simple past tense)
- 2. "I have been to England" (present perfect tense)
- 3. "I had been to England" (past perfect tense)
- 4. "I am in England" (simple present tense)

The meaning of 1, 2, and 3 is that, sometime in the past, I did go to England, and the meaning of 4 is that currently I am in England. The implications of the three statements about the past (1, 2, and 3), however, are subtly different. The implication of "I went to England" is that this was a single event that took place at one point in the past. It might have been a holiday, a work trip, or a long stay; the reader can't tell. The implication of "I have been to England" is that this is an experience I have had, possibly many times. Typically, the writer would be discussing the travelling he has done in his life. The implication of "I had been to England" is that going to England was something I had done prior to something else. For example, "I had been to England already, so I didn't go there on my last trip."

To take another example, the statement "I drove the car" implies a specific event, whereas "I have driven the car" implies that I have experience of driving that car, and "I had driven the car" implies that I already had experience of driving that car before something else happened. "I drive the car" is more straightforward, meaning simply that I still drive it these days.

Similarly, a witness who tells the police "I saw her at the market" is implying something different from one who says "I have seen her at the market" or "I had seen her at the market". The first witness is probably referring to the specific time or event the police are interested in, whereas the second witness is suggesting that the woman may frequent the market ("I have seen her there") or that she frequented it before a particular event happened ("I had seen her there"), but

not that she was necessarily at the market at the time of interest. The statement "I see her at the market" would imply that both the witness and the woman of interest are still regularly going to the market.

In academic literature reviews, these subtle differences become more complex, and can be used to convey the way the author feels about the literature they are reviewing, including their level of confidence in the findings. For example, the following simple examples all have different implications:

- 1. Smith (1972) showed that summers were cooler in the north.
- 2. It has been shown that summers are cooler in the north (Smith 1972).
- 3. Smith had already shown, in 1972, that summers were cooler in the north.
- 4. Summers are cooler in the north (Smith 1972).

Can you tell what the different implications of each of the above sentences are? In the following sections, I will take you through the most common different ways in which tenses are used in the Introduction Section, and particularly in the literature review. Once you have read through the rest of the chapter, I suggest coming back to these sentences to see if the differences in implication have become clearer for you.

How to use Simple Past Tense in your Introduction Section

In your literature review in the Introduction Section, you usually need to refer to studies that happened in the past. Therefore, using the simple past tense is the obvious choice. However, skilled authors tend not to use past tense for most of their literature review, but instead use it only occasionally when they wish to refer to a specific study or make a particular inference about a specific study.

What is Simple Past Tense?

The simple past tense usually involves using the author's name and the past tense version of the reporting verb. The final two sentences of Paragraph Version 2 are written in the past tense (the terms in bold indicate the instances of simple past tense):

However, **Orchard et al.** (1972) **argued** that eating mangos too often could have negative effects on overall health, and **Vintner** (1987) **said** the same of grapes. **Emdee et al.** (2007) even **suggested** that overconsumption of these fruits can lead to the development of intolerances.

What does Simple Past Tense imply?

In the sentence above, the author probably feels that these findings are once-off and may not be generally applicable: only these particular authors (e.g. Orchard et al.) have shown these findings (e.g. that eating mangos too often is bad for you) in this particular study (Orchard et al. 1972), and therefore there is only this one data point to support this conclusion. In other words, there is a subtle implication, when simple past tense is used as in the above sentence, that these findings are not, or may not be, true in general.

To make this implication even stronger, authors sometimes refer specifically to the specific study in the sentence, and put the findings in simple past tense as well (e.g. "eating mangos too often **had** negative effects on overall health"). This carries a stronger implication that these findings were only shown to be true in that specific case, and that in other circumstances the findings may well be different. Compare the following sentences:

- 1. Founder et al. (1927) showed that summers are longer than winters.
- 2. Founder et al. (1927) showed that summers were longer than winters.
- 3. In their study of 1924-1926, Founder et al. showed that summers were longer than winters (Founder et al. 1927).

While in sentence 1 the author might be suggesting that this is a finding that may not be widely applicable because it has only been obtained once, in sentences 2 and 3 the author seems to be suggesting not only that this finding has only been obtained once, but also that it may only have been the case in this 1927 study. Sentence 3 is a little more specific about the precise timing of the finding, implying that perhaps summers were only longer than winters in the years in which Founders et al. collected their data, 1924 to 1926.

Are there other ways to use Simple Past Tense?

Another way in which simple past tense can be used is when using a storytelling approach to write the literature review, or a section of it. A storytelling approach means relating the various findings in the literature review as a series of events in sequence, as if you were telling a story. This is a slightly unusual approach to writing academic literature reviews, but when interspersed with the more common approach it can be used to make a literature review more engaging and interesting to read. Consider the following example:

Smith et al. conducted a two-year field experiment in 2009 and 2010 in rice paddies to learn about the connection between rice production and greenhouse gases emissions (2011). Two years later, this experiment **was repeated** by **Jones and Kingston** (2015).

Sentences like these could form part of a story about how our knowledge about the connection between agriculture and greenhouse gas emissions has developed. In this way, simple past tense can be used effectively for a storytelling approach.

Simple past tense can also be used in the part of the Introduction Section that refers to the present study (although simple present tense is more commonly used nowadays). Here is an example:

In this study, we **examined** the likelihood of developing a food intolerance after eating a range of quantities of mangoes every day. We **hypothesized** that a daily consumption of two mangoes or more **would** lead to food intolerances in at least 50% of adults.

What happens if I use Simple Past Tense too much in my Introduction Section?

If you use simple past tense a lot in your Introduction, firstly, the text will sound stilted and rather clumsy to a native speaker. Secondly, it will soon become monotonous and boring to read. Thirdly, it may be taken to imply that you have little faith in all or many of the findings you are reporting. So, to sum up, do use simple past tense in your Introduction Section, but use it mostly for reporting studies that you have little faith in or which represent singular data points that you feel may not be representative in general.

How to use Present Perfect Tense in your Introduction Section

Present perfect tense is more common than simple past tense in a literature review. Present perfect tense is used to describe findings or events that happened in the past but have present consequences. Put another way, present perfect tense should be used when making broad statements about trends or generally accepted knowledge in the field.

What is Present Perfect Tense?

Using present perfect tense usually involves the word "has" or "have" in addition to the past tense version of the reporting verb. Unlike simple past tense, the authors are not referred to directly in the sentence. In addition, temporal adjectives like "recently" and "long considered", and terms like "much debated" and "extensively studied" usually suggest present perfect tense. This is because these words imply something that did not occur at a specific point in time; rather, they imply trends.

The first two sentences of Paragraph Version 2 are in present perfect tense (bold indicates instances of present perfect tense):

Many studies have shown that eating fruit is good for you (e.g. Browne et al. 1978; Jones et al. 1982; King and Johnson 1984). However, **some authors** (e.g. Whyte and Greene 1986; Linden et al. 1988) **have debated** the optimal quantities and proportions of each type of fruit.

Note that these sentences also do not refer directly to the authors who conducted the research, but refer instead to "many studies" and "some authors", and the names of the authors are given parenthetically as citations.

What does Present Perfect Tense imply?

The implication of these sentences is that these findings have fairly convincingly been shown to be true and are generally widely accepted by the community. In the above sentences, the author seems to feel that it is a fairly well-established fact that eating fruit is good for you, although there has been (in the past) a general debate about the specifics of how much and which types of fruit.

Reporting things for which there is no evidence

Another case in which present perfect tense is usually used is when reporting findings that have not yet been reported in the literature, e.g. *Whether apples or pears are better for coronary health has not yet been determined*. This is because there is no specific time at which these findings were not reported.

Can you use simple past tense in this situation? Yes -- when referring to something specific that some authors did not do at the time of their study, simple past is appropriate, as in the following example:

Smith et al. conducted a two-year field experiment in 2009 and 2010 in rice paddies to learn about the connection between rice production and greenhouse gas emissions (2011). However, **they did not consider** the effects of nitrogenous fertilizers.

So, simple past tense and present perfect tense work very differently when referring to things not done or not found. Take care with these.

What do you do if you are unsure if there is no evidence?

Is simple past tense or present perfect tense appropriate here? Is it even acceptable to admit that you're unsure in academic writing? Should you not conduct an exhaustive literature review on every aspect of interest in your study? Well, in some cases it can be difficult to be sure whether you have completely covered all the available literature. For example, there may be studies that addressed the question of interest that were published in another language or long ago, and which have also not been discovered by other authors reviewing the topic. In such cases, it is best to use a statement like "To our knowledge, no one has investigated this subject" (present perfect tense) or "To the best of our knowledge, this is the first study to address this issue" (simple present tense).

What happens if I use Present Perfect Tense too much in my Introduction Section?

Present perfect tense is often the most commonly used tense in the Introduction Section, so it is unlikely that you would use it too much. However, it is always a good idea to vary your use of tense a bit, to make the text less monotonous and more engaging. Consider carefully what the implications of the different tenses are, and if you have particular findings or studies that you have somewhat less confidence in, consider presenting them in simple past tense. Conversely, if there are aspects of the established knowledge that you feel very confident about, consider presenting these in simple present tense. Doing this would both relieve the monotony and convey a subtle message to your reader about how much confidence you put in those pieces of information.

How to use Simple Present Tense in your Introduction Section

Simple present tense is also frequently used in literature reviews, and carries a strong implication when it is used. Simple present tense is used either to describe knowledge that is so widely accepted that it is no longer disputed, to refer to findings that apply generally (not just to specific studies), or to refer to ongoing debates. Put another way, simple present tense should be used when you are confident about particular knowledge, when you are confident that knowledge is correct for all situations, or when a debate is as yet unresolved.

What is Simple Present Tense?

Simple present tense in academic writing generally involves using the passive voice, and not mentioning the author(s) directly in the sentence. In other words, sentences in simple present tense usually include the word "is", "are", "can" or "may".

The whole of Paragraph Version 1 is in simple present tense (bold indicates instances of simple present tense):

Although it **is well recognized** that eating fruit **is** good for you (e.g. Browne et al. 1978; Jones et al. 1982; King and Johnson 1984), the optimal quantities and proportions of each type of fruit **are much debated** (e.g. Whyte and Greene 1986; Linden et al. 1988). Apples **are generally accepted** to be the best source of iron (Smythe et al. 1992) and oranges **are known to have** the highest vitamin C content (Davidson 1963). However, **some authors argue** that eating mangos (Orchard et al. 1972) and grapes (Vintner 1987) too often **can have negative effects** on overall health, and **can also lead to** the development of intolerances (Emdee et al. 2007).

Note that, like with perfect present tense, these sentences do not refer directly to the authors who conducted the research. Instead, they either don't mention them at all, or refer to "some authors", and the names of the authors are given parenthetically as citations.

What does Simple Present Tense imply?

The implication of these sentences is that these findings have conclusively been shown to be true and are widely accepted by everyone, or, in the case of debates, that such debates are ongoing. In the above sentences, the author seems to feel that it is an undisputable fact that eating fruit is good for you, although there is an ongoing general debate about the specifics of how much and which types of fruit. The author also feels that the points about apples and oranges are also widely agreed upon, but that the debates about the effects of eating too many mangoes and grapes are ongoing and unresolved.

Are there other ways to use Simple Present Tense?

Another way to use simple present tense is when presenting something you are absolutely sure about. In this case you might use the active voice rather than the passive voice. Such

statements might be so widely acknowledged to be true that you may not even need a citation to back them up. Here are three examples:

- The global population exceeds 7 billion people, and atmospheric carbon dioxide levels continue to **rise** (IPCC 2016).
- Earth **is** the third planet from the sun and the only one in our solar system that **supports** life.
- Smoking causes cancer.

The implication of such statements is very strong: they imply that these pieces of information are undoubtedly the truth. Literature reviews written with a lot of simple present tense are often engaging to read, and flow well. However, exercise caution in using simple present tense in this way, and to use it only for statements that you are very confident about. If readers fundamentally disagree with your viewpoint when it is stated in this strong way using simple present tense, they may feel your research is flawed and simply stop reading and disregard your paper. For example, how would you feel reading this:

HIV **is** cured by consuming large quantities of garlic, and tuberculosis **is** prevented by eating three apples a day.

Finally, simple present tense is also frequently used in the part of the Introduction Section that refers to the present study. In this case it is also usually used in the active voice rather than the passive voice. Here is an example:

In this study, we **examine** the likelihood of developing a food intolerance after eating a range of quantities of mangoes every day. We **hypothesize** that a daily consumption of two mangoes or more **leads** to food intolerances in at least 50% of adults.

The above example has a more immediate and active tone than the example in simple past tense, and carries a feeling of momentum. If you are using more of a storytelling approach, you might also wish to intersperse some simple future tense in this part of the Introduction Section:

In this study, we **will examine** the likelihood of developing a food intolerance after eating a range of quantities of mangoes every day. We hypothesize that a daily consumption of two mangoes or more leads to food intolerances in at least 50% of adults.

What happens if I use Simple Present Tense too much in my Introduction Section?

Simple present tense is also often the most commonly used tense in the Introduction Section, so it is unlikely that you would use it too much. However, as mentioned above, it is always a good idea to vary your use of tense. Again, in doing so, consider carefully what the implications of the different tenses are, so that while relieving the monotony you are also conveying the correct subtle message to your reader about how you feel about the information you are presenting.

How to use Past Perfect Tense in your Introduction Section

Past perfect tense is uncommon in literature reviews. It can be used when using a storytelling approach, however. When used in this context, it should be used to indicate that something had already been done before something else happened. In other words, it should be used when the sequence of events is important for explaining why the current situation exists.

What is Past Perfect Tense?

Using past perfect tense usually involves the word "had" in addition to the past tense version of the reporting verb. The authors may or may not be referred to directly in the sentence. In addition, temporal adjectives like "previously" and "already" often suggest past perfect tense. This is because these words imply something that had occurred before a specific point in time.

There are no instances of past perfect tense in Paragraph Version 1 or 2 at the start of this chapter. Here instead is an example of how past perfect tense might be used in the same hypothetical paper that those paragraphs could come from (bold indicates instances of past perfect tense):

Although Davidson (1963) **had previously found** that oranges have the highest vitamin C content of the commonly available citrus fruits, Young and Johnson (1972) subsequently found that kumquats contain even more vitamin C per gram. With respect to iron, it **had been shown** in China that apples are the best source (Yang et al. 1965) many years before Smythe et al. (1992) made their renowned discovery.

Note that in the first sentence the author is referred to directly, whereas in the second the authors are only referred to parenthetically. Notice also that in both sentences, the phrase involving past perfect tense is followed by a phrase in simple past tense. This is often the case, because past perfect tense is used to refer to something that happened before something else. The second occurrence would then be in simple past tense.

Past perfect tense	Simple past tense
Although Davidson (1963) had previously found that oranges have the highest vitamin C content of the commonly available citrus fruits. Explanation: Past perfect tense ("had previously found") indicates that this finding happened before the finding in the second part of the sentence.	Young and Johnson (1972) subsequently found that kumquats contain even more vitamin C per gram. Explanation: Simple past tense ("found") indicates that this finding happened after the finding in the first part of the sentence.

What does Past Perfect Tense imply?

The implication of the first half of the sentences above is that these findings were obtained before the findings described in the second half of the sentences. In the first sentence, the author is suggesting that Young and Johnson's study built upon but also contradicted Davidson's study.

In the second sentence above, the author is suggesting that Smythe et al. were actually not the first people to make the discovery that apples are the best source of iron, even though they have been credited as such in the literature (or at least in the literature that is accessible to English-speaking people). In other words, the author is suggesting here that the Chinese discovery, which happened many years earlier, was ignored by or unknown to Smythe et al. and all or most of the people who read and cited their study.

What happens if I use Past Perfect Tense too much in my Introduction Section?

Too much past perfect tense in the Introduction Section would sound very unnatural and awkward. If you use past perfect tense without making it clear what happened after the thing that you refer to in past perfect tense, the text would tend not to make sense. A native speaker would soon be able to tell that the text had been written by an NNSE author who was struggling with applying appropriate tenses. The reader would lose trust in the author's authority.

Shifting tenses in a sentence, a paragraph, or the Introduction Section as a whole

Advanced authors use tense shifts to control the tone and make the text more interesting and engaging to read. There are several specific reasons to shift the tense in the Introduction Section:

- 1. indicate the timeline of the story;
- 2. emphasize some research over other research; and
- 3. indicate which research results are no longer considered current or relevant.

Although in general tense would not change within a sentence, it does sometimes make sense and should be done. The example text in the past perfect tense section above is one such instance, and here is another example:

Although it **has long been thought** that pineapples are not nutritious (e.g. Vine et al. 2001), this new study **proves** it conclusively (Whyte and Blythe 2016).

The first part of the sentence above is in present perfect tense, and the second part is in simple present tense. Thus, tense can be shifted within a sentence if necessary to indicate the chronological order of different studies.

In a paragraph in the literature review part of the Introduction Section (or if you are reviewing literature in the Discussion Section), the tense should largely be consistent, but should be changed to indicate different levels of confidence in the studies under review.

In the Introduction Section as a whole, most of the literature review part of it should typically be in present perfect tense. There could be a few instances of simple past tense, where the author's confidence in the studies is lower, and one or two instances of simple present tense, where the author's confidence in the knowledge is very strong. It is less likely that there would be any past perfect tense, but past perfect tense might be used if the chronological order of studies is important to convey.

It is important to be aware that if all of the literature review is written in one tense (particularly in simple past tense), then the reader cannot tell anything about how the author feels about any of the findings they are reporting. The different implications of the tenses thus only become apparent when the tenses are mixed to some degree in the text.

The final part of the Introduction Section, however, which is the statement about the present study, will generally be in either simple past tense or a mixture of simple present tense and simple future tense.

What if the journal editor tells you to use a specific tense in your Introduction Section?

Sometimes, journal editors make comments like "You should use XXX tense in your Introduction Section." What they actually mean, though, is that "Where the rules of English grammar permit the author to choose from various acceptable verb tenses, this journal prefers the XXX tense, although of course tense should be varied, as is natural when communicating in English."

Uni-edit often helps authors to understand that the journal editor's comment should not be taken so literally. Here is an example of what can happen if the author assumes that the journal editor means they should use only the one tense they have indicated.

Author's original work:

Smith et al. (2003) showed that grapes contained high levels of Vitamin A, and Gardner and Plum (2002) found that they had high levels of Vitamin B. Barber and White (2004) discovered that grapes were rich in potassium, but Grey et al. obtained contrasting results in 2006. Browning (2007) argued that grapes were nevertheless an excellent source of many essential nutrients, although Holmes (2006) showed that they sometimes also contained trace quantities of some toxic compounds, such as arsenic.

Journal editor tells author to use present tense in the Introduction Section and so the author changes too many verbs to present tense:

Grapes contain high levels of Vitamin A (Smith et al. 2003) and high levels of Vitamin B (Gardner and Plum 2002). Grapes are rich in potassium (Barber and White 2004), although another study shows that this is not the case (Grey et al. 2006). Grapes are nevertheless an excellent source of many essential nutrients (Browning 2007), although Holmes (2006) argues that they sometimes also contain trace quantities of some toxic compounds, such as arsenic.

What the journal editor actually wants to read is something more like this:

Grapes have been shown to contain high levels of both Vitamin A (Smith et al. 2003) and B (Gardner and Plum 2002). There is some debate about the levels of potassium they contain, with Barber and White (2004) stating that they are rich in this nutrient and Grey et al. (2006) claiming the opposite. Browning 2007 has nevertheless argued that grapes are an excellent source of many essential nutrients, even though Holmes (2006) had previously shown that they can contain trace quantities of some toxic compounds, such as arsenic.

Can you identify how many different tenses are used in the third (last) version above? In spite of this mix of tenses, the overall impression is that the present tense is being used, and therefore that these findings and debates are current and ongoing. The only exception is Holmes' 2006 finding, which definitely happened before Browning published her paper in 2007.

The use of citations in the Introduction Section

As you may have observed in the various examples given above, citation style is closely linked to tense. There are a few different ways of citing the studies you refer to in your literature review. It is tempting to simply refer to the authors directly in the sentence; indeed, many NNSE authors tend to use this approach almost exclusively. This results in a long series of sentences along the lines of "Argrave et al. (2013) showed that, and Hillstead and Hampton (2012) found". This style, when used exclusively, soon becomes monotonous, and many readers will find it difficult to focus on a literature review that is all written this way. Also, this style uses only simple past tense, which, as we have seen, should ideally only be used occasionally in the literature review.

We have also seen that, in addition to conveying different levels of confidence in the findings being reported, using different tenses also tends to involve using different ways of citing the literature. So while simple past tense usually involves mentioning the authors directly in the sentence, present perfect tense and simple present tense generally involve citing the authors parenthetically. Past perfect tense can use either type of citation.

Another factor to consider when choosing the tense to use is flow. In general, referring to the authors directly in the sentence breaks up the flow of the sentence and detracts from the impact of the statement. Consider the following two variations:

- Argrave and Johnson (2011) showed that oranges contain more Vitamin K than pears, but Black and Browne (2013) found that bananas contain even higher levels of Vitamin K.
- Although oranges have been shown contain more Vitamin K than pears (Argrave and Johnson 2011), bananas have been found to contain even higher levels of Vitamin K (Black and Browne 2013).

In the first variation, the reader must first focus on the names of the authors before they get to the finding. In fact, the reader might even feel that the author is more interested in who published these studies than in what the studies showed. In the second variation, however, the reader can easily skip over the parenthetical citations (and come back to them if they need to find the study), and it is clear that the points the author wants to make are about the Vitamin K levels of the fruit, not about who published which study.

Some journals, e.g. <u>PLOS ONE</u>, use the numeric citation style, in preference to the parenthetical style (see <u>this paper</u> for an example of how this is used). The numeric style is even less intrusive, and when preparing a paper for a journal that uses the numeric style, it is a good idea to take advantage of the opportunity to practice writing in a more flowing style, by referring directly to authors as seldom as possible in the text.

Example Introduction Sections from the literature

Here are links to three open access articles so you can see how the authors use and shift tense in their Introduction Sections.

Kniss AR, Savage SD, Jabbour R (2016) Commercial Crop Yields Reveal Strengths and Weaknesses for Organic Agriculture in the United States. PLoS ONE 11(8): e0161673. doi:10.1371/journal.pone.0161673

Notice how the authors use mainly present tense: they are clearly confident that the findings they are reporting are beyond dispute. There are also three instances of simple past tense and five of present perfect tense. The clauses from the first three paragraphs of the Introduction Section are listed in the table below. Notice also that the authors have only referred to the authors of one study directly ("Seufert et al.") and that this coincides with the only three uses of simple past tense in these three paragraphs. As a result, the text flows well and it is easy to grasp the main points they are making.

Simple present tense	Simple past tense	Present perfect tense
advantages include	Seufert et al. [8] reported	has increased steadily
research is limited	studies were partitioned	have been theorized
meta-analyses report	perennials had more	has consistently been
critics argue		have repeatedly demonstrated
society cannot justify		have not been clearly linked
farmers can match		
yield/conservation tradeoff is likely		
yield differences vary		

Zhang N, McHale LK, Finer JJ (2016) A Leader Intron of a Soybean Elongation Factor 1A (eEF1A) Gene Interacts with Proximal Promoter Elements to Regulate Gene Expression in Synthetic Promoters. PLoS ONE 11(11): e0166074. doi:10.1371/journal.pone.0166074.

Notice how the authors use mainly present tense: they are clearly confident that the findings they are reporting are beyond dispute. There is also one instance of simple past tense and two of present perfect tense in the first four paragraphs of the Introduction Section. The clauses are

listed in the table below. Notice also that the authors have not referred to any authors directly. As a result, the text flows well and it is easy (if you understand the jargon) to grasp the main points they are making.

Simple present tense	Simple past tense	Present perfect tense	
are constitutively expressed	intron was used	has not been reported	
proteins are active		effort has been placed	
catalyzing the binding			
proteins are multifunctional			
interact with			
to organize the			
eEF1As enhance tolerance			
genes contain one			
genes exhibit			
introns can either			
introns can also			
introns can significantly enhance			
the magnitude is usually			
introns can enhance			
splicing signals can influence			
an intron affects			

Cho YY, Sidorenkov G, Denig P (2016) Role of Patient and Practice Characteristics in Variance of Treatment Quality in Type 2 Diabetes between General Practices. PLoS ONE 11(11): e0166012. doi:10.1371/journal.pone.0166012.

Notice how the authors use mainly present tense: they are clearly confident that the findings they are reporting are beyond dispute. There are also four instances of simple past tense and

two of present perfect tense. The clauses are listed in the table below. Notice also that the authors have not referred to any authors directly, and only specifically to one study ("a recent review"). As a result, the text flows well and it is easy (if you understand the jargon) to grasp the main points they are making.

Simple present tense	Simple past tense	Present perfect tense	
recommendations are linked	prescribing ranged from	have been introduced	
measures assess	prescribing ranged from	have been found to influence	
care is delivered	a recent review concluded		
variation is common	no patterns were observed		
differences may be attributed			
it is to be expected			
decisions are influenced			
patients commonly have			
characteristics affect			
research indicates that			
characteristics can all influence			
this may reflect			
regimens are considered			
treatment is prescribed			
variance may also be			
when there are			
when patients are reluctant			

variance can be	
when prescription rates differ	
habits can influence	
physicians may differ	
factors may contribute	
accounting is important	
the aim of this study is to describe	
and identify patient	

Exercises

Multiple-choice questions

1. You are confident that these findings are correct. Complete the sentence as appropriate.

Wearing a black suit with businesslike efficiency.

- (a) Has been associated
- (b) Has been shown to be associated
- (c) Is associated
- (d) Was associated
- You are not convinced that these findings are true in every case; in fact, you suspect there was something unusual about this particular study. Choose the version that best conveys your feelings to the reader.
 - (a) Pears contain more fiber than apples (Grove 2006).
 - (b) Grove (2006) found that pears contain more fiber than apples.
 - (c) Pears have been shown to contain more fiber than apples (Grove 2006).
 - (d) Pears had been shown to contain more fiber than apples (Grove 2006).
 - (e) Pears were shown to contain more fiber than apples (Grove 2006).
 - (f) In 2005, Grove found that pears contained more fiber than apples (Grove 2006).
- 3. To make your literature review more engaging, you wish to tell a story about how the presence of vitamins in fruit was discovered. Choose the most appropriate sentence to begin this story.
 - (a) Fruits contain vitamins (Rutherford et al. 1956).
 - (b) It has long been known that fruits contain vitamins (Rutherford et al. 1956).
 - (c) In 1956, Rutherford et al. published a landmark study showing that fruits contain vitamins.
 - (d) Rutherford et al. (1956) had shown that fruits contain vitamins.
- 4. Proceeding with your story about the discovery of vitamins in fruit, you wish to show how one team was credited with an important finding, despite the fact that another had already obtained a similar finding. Choose the sentence that best conveys that information.
 - (a) Although Smythe and Johnson (1962) had already shown that citrus fruit are an excellent source of Vitamin C, Giller and Burman's 1965 finding that oranges and lemons contain more Vitamin C than any other fruit is far more widely cited.
 - (b) Smythe and Johnson (1962) showed that citrus fruit were an excellent source of Vitamin C, but Giller and Burman's 1965 finding that oranges and lemons contained more Vitamin C than any other fruit was far more widely cited.
 - (c) Citrus fruit are known to be an excellent source of Vitamin C (Smythe and Johnson 1962), though Giller and Burman's 1965 finding that oranges and lemons contain more Vitamin C than any other fruit is far more widely cited.

- 5. Later on in the story, you wish to refer to something that has not been covered in previous studies. Which of these options conveys this best?
 - (a) Despite the extensive literature on the subject, we did not know which stone fruit contain the highest quantities of Vitamin D.
 - (b) Despite the extensive literature on the subject, it has not been shown which stone fruit contain the highest quantities of Vitamin D.
 - (c) Despite the extensive literature on the subject, it was not shown which stone fruit contain the highest quantities of Vitamin D.
 - (d) Despite the extensive literature on the subject, we have not yet found out which stone fruit contain the highest quantities of Vitamin D.
- Towards the end of your Introduction Section you discuss the aims of the present study. Select the sentence that uses the most appropriate tenses for this context. More than one option may be correct.
 - (a) In this study, we had investigated whether peaches or apricots contained more Vitamin D.
 - (b) In this study, we investigated whether peaches or apricots contain more Vitamin D.
 - (c) In this study, we have investigated whether peaches or apricots contained more Vitamin
 - (d) In this study, we investigate whether peaches or apricots contain more Vitamin D.
 - (e) In this study, we will investigate whether peaches or apricots contain more Vitamin D.
 - (f) In this study, it has been investigated whether peaches or apricots contained more Vitamin D.

Multiple-choice question answers

- 1. c; "is associated" indicates the author's confidence in the findings.
- 2. f; "Grove found that" suggests the author does not believe Grove's findings are generally applicable.
- 3. c; "In 1956, Rutherford et al. published" sets the stage for the story by specifying something that happened at the beginning of the story.
- 4. a; "had already shown" implies an event that happened before the event referred to next.
- 5. d; "have not yet found" indicates something that remains to be done.
- 6. b, d; either "we investigated" or "we investigate" is acceptable. The simple present tense version ("we investigate") is more immediate and carries more momentum.

Fill-in-the-blank paragraph

In the following paragraph, supply the words that best fit in the blank spaces. All the missing words are to do with the tense being used. Pay careful attention to the tense of the other words in the sentence, and the structure of the sentence, so that you can choose the tense of the missing word correctly.

Many studies (1) shown that papayas ...(2). the least nutritious of all fruit (e.g. Franz et al 1967, Hooke and Goldsmith 1978, Burns 1999). However, a more recent study(3) that in fact papayas ... (4) higher levels of magnesium than almost all other fruits (Jones 2012). This(5) to much controversy; the most strongly debated question being whether the magnesium in papayas(6) accessible to humans or not. While Jones (2014) and Brink (2015)(7) that all forms of magnesium can be absorbed by humans, Whyte and Greene (2015) and Adams (2016)(8) that this form is the one kind that ...(9) not available for absorption by mammals. In this study, we(10) to address this question. To do so, we(11) the magnesium from papayas and ...(12) whether mice and rats could absorb it.

Fill-in-the-blank paragraph answers



- 2. Are
- 3. Suggested
- 4. Contain
- 5. Led to
- 6. Is
- 7. Argue
- 8. State
- 9. Is
- 10. Attempted
- 11. Extracted
- 12. Investigated

The implications of tense (from four example sentences introduced in the Meanings and Implications section)

The following simple examples all have different implications.

- (a) Smith (1972) showed that summers were cooler in the north.
- (b) It has been shown that summers are cooler in the north (Smith 1972).
- (c) Smith had already shown, in 1972, that summers were cooler in the north.
- (d) Summers are cooler in the north (Smith 1972).

Questions:

- 1. Which sentence conveys the most confidence in the finding that summers are cooler in the north?
- 2. Which sentence suggests that something happened after Smith published her finding in 1972?
- 3. Which sentence implies that the author does not believe that Smith's findings are universally applicable?
- 4. Which sentence implies that Smith's finding is generally accepted knowledge?

Answers

- 1. Sentence (d) conveys the most confidence in this finding.
- 2. Sentence (c) suggests that something else happened after Smith published her finding.
- 3. Sentence (a) implies that the author does not believe that Smith's findings are universally applicable.
- 4. Sentence (b) implies that Smith's finding is generally accepted knowledge.

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