Quantitative research process

Before you prepare your research report you need to ask yourself:

Is my research significant enough to deserve publication?

Will others be interested in reading it and how will it benefit their own work?

Are validity and reliability criteria met?

➢ *Assuming that the answers to these questions are satisfactory, we move on to the production of the research report...*

The research proposal

Objectives statement

Scope and significance of the research and its possible findings

Theoretical framework (theoretical perspective from which the objectives are investigated)

Research questions or hypotheses

Method (justification for the choice of research strategy and techniques)

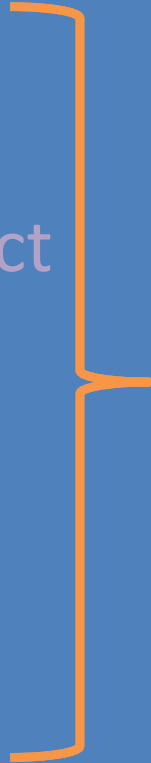Research protocol (participants, material, design, procedure)

Methods of data analysis

A research proposal answers the following questions:

- [ ] What's the subject? Objectives statement
  Scope and significance of the research and its possible findings
- [ ] Why is this issue important?
- [ ] What does the literature suggest? Theoretical framework
- [ ] What are the research questions? Research questions or hypotheses
- [ ] Why is this method/technique appropriate?
- [ ] How will I collect the data?
- [ ] Who will the participants be and how will I select them?
- [ ] What tools will I need/use?
- [ ] What is my timeline?
- [ ] Do I identify any difficulties or obstacles?
- [ ] Are there any ethical issues?

Method & Research protocol

- [ ] How will I do the analysis? Methods of data analysis

American Psychological Association (APA) writing format

- The structure of the research report is simple and follows the steps of conducting the research.

- The main **aim** is to state, *as accurately as possible*, the problem under investigation, the path we followed to carry out our research, the findings and the interpretations on our them.

- The criterion to keep in mind when writing is that of **replicability**: If another researcher reads our research and can replicate it in exactly the same way, then it is very likely that we have written a clear and comprehensive report (Christensen, 2007).

Components of a research report

Title: Written in the centre of the first page in capital and lower case letters. Indicates the topic of the study and briefly states the variables or theoretical issues addressed.

A typical title ranges between 10 and 12 words in length.

The title is also available in English/Greek

Additional cover details

You should check your department's requirements regarding the guidelines for presenting your thesis.

- University, Faculty, Department, MSc
- Type of report (Thesis)
- Name (!)
- Supervisor
- Place and date of submission or support (month & year)

"Out of main body" texts

Sections of the report not listed in the contents and preceding the contents:

- Dedicated to...my parents, my friends, my professor, etc.
- Acknowledgements
- Abstract (120 - 400 words & keywords)*

*the abstract is usually written in both languages (English/Greek)

Abstract

It summarises the content of the report.

It is about 120 words long and can be up to 400 words.

It is written on a separate page, with the word "Abstract" at the top of the page and in the centre, in lower case and capital initials. No indented paragraph follows.

Content: Brief description of the research question, summary of the method applied (participants, instruments, design, procedure), main findings and conclusions. It also highlights the contribution of the research.

* The same applies to the "Περίληψη", i.e. the summary in Greek, which is required for theses and dissertations.

«Depression, anxiety and anger among the university students»
Thesis
Student: Maria Christodoulaki
Supervisor: Foteini Polychroni
Athens, 2018

Περίληψη

Στόχος της παρούσας έρευνας είναι η διερεύνηση των επιπέδων Κατάθλιψης, Άγχους και Θυμού στο φοιτητικό πληθυσμό και πιθανή συσχέτιση μεταξύ τους και με τα δημογραφικά χαρακτηριστικά του δείγματος. Οι συμμετέχοντες της έρευνας ήταν 350 φοιτητές, 175 άντρες και 175 γυναίκες που φοιτούν σε δύο Ανώτατα Εκπαιδευτικά Ιδρύματα και ένα Ανώτατο Τεχνολογικό Εκπαιδευτικό Ίδρυμα της Αθήνας. Τα εργαλεία αξιολόγησης ήταν ένα αυτοσχέδιο ερωτηματολόγιο δημογραφικών στοιχείων, η κλίμακα κατάθλιψης του Α. Τ. Beck (Beck Depression Inventory [BDI]), η κλίμακα για την έκφραση του Θυμού (State-Trait Anger Expression Inventory [STAXI]) και το ερωτηματολόγιο Άγχους του Beck (Beck Anxiety Inventory - BAI). Βρέθηκε ότι υπήρχε θετική σχέση ανάμεσα σε Κατάθλιψη και Άγχος, θετική σχέση ανάμεσα σε Κατάθλιψη και Εσωτερικευμένο Θυμό, αρνητική σχέση μεταξύ Κατάθλιψης, Εξωτερικευμένου Θυμού και Ελέγχου του Θυμού, οι γυναίκες παρουσίασαν υψηλότερα ποσοστά Κατάθλιψης και Άγχους από τους άντρες και οι πρωτοετείς φοιτητές παρουσίασαν υψηλότερα επίπεδα Κατάθλιψης.

Λέξεις- κλειδιά: κατάθλιψη, άγχος, θυμός, φοιτητικός πληθυσμός
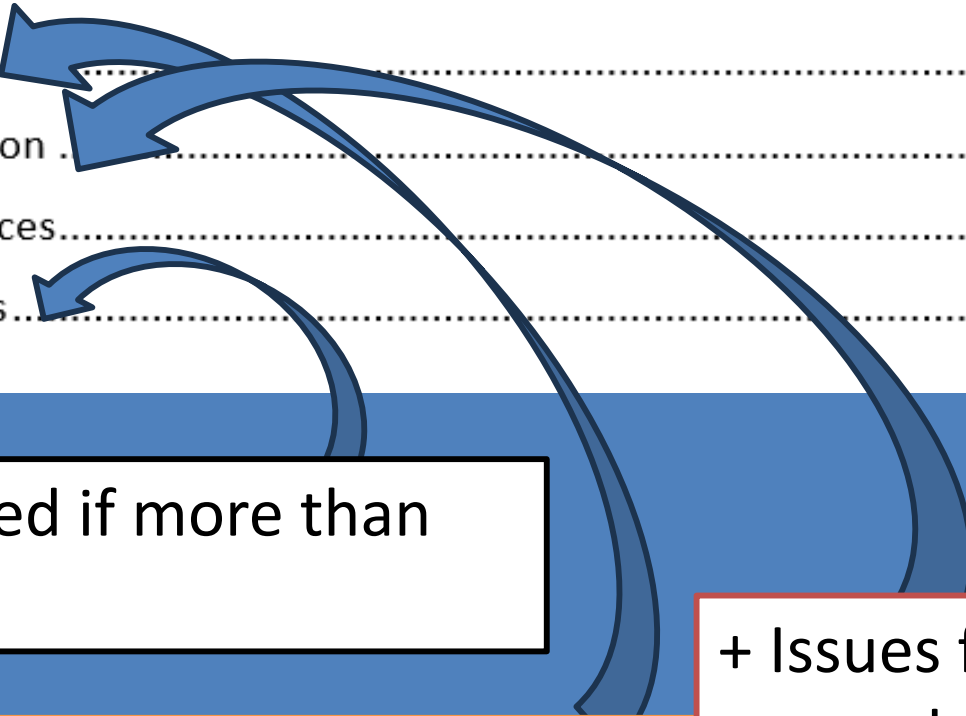
Abstract

The aim of the present study is to examine the levels of Depression, Anxiety and Anger in Greek University students, possible intercorrelations and the demographic characteristics of the sample. The participants of the study were 350 university students, 175 men and 175 women from two Higher Education Institutions and one Higher Technological Educational Institute of Athens. The psychometric instruments used were a self-report demographic questionnaire, the Beck Depression Inventory [BDI], the State-Trait Anger Expression Inventory [STAXI] and the Anxiety Questionnaire of Beck (Beck Anxiety Inventory - BAI). The study found that there was a positive correlation between Depression and Anxiety, a positive correlation between Depression and Internal Anger, a negative correlation between Depression, External Anger and Anger Control, while women showed higher rates of Depression and Anxiety than men. Furthermore, first year students showed higher levels of Depression.

Keywords: depression, anxiety, anger, University students

Table of contents

Table of contents

numbered if more than one

if quantitative/experimental

+ Issues for further research & Shortcomings of the current research

The APA typically does not employ chapter and subchapter numbering. However, they are useful when writing and evaluating a thesis.

Reminder: Create the table of contents automatically and not "by hand" as it is difficult to update them.

Table of contents

Headings

Level of heading	Format of heading
1	Boldface, Centered Main Heading, in Uppercase and Lowercase
2	Boldface, Flush Left, in Uppercase and Lowercase
3	Boldface, paragraph indented, in lowercase, and ending with a period.
4	*Boldface, paragraph indented, italicized, lowercase, ending with a period.*
5	*Italicized, paragraph indented, lowercase, ending with a period.*

Introduction & Theoretical Framework

In scientific articles, the Introduction coexists with the Theoretical Framework.

In theses and dissertations are two distinct chapters.

You have to establish a "narrative" with a "debate/conversation" between the important researchers in the field and the relevant research projects that have preceded your work.

Research articles: The Introduction includes a review of the literature, the objectives and research questions. It has no main title.

Theses: The Introduction includes a general reference to the theoretical framework of the thesis, in order to indicate the scientific domain in which the thesis is situated. Key objectives and research questions of the work, breakdown of thesis chapters, main findings and contribution of this thesis to the corresponding scientific field. It is an extended abstract designed to convince the reader to read our work.

Review of the literature

What is already known about the topic? What research techniques have already been used? What controversies and consensuses exist? Are there any unanswered research questions? Who are the main scholars?

- The theoretical framework emerges from the process of the literature review.
- The contribution of this research to the scientific field and the social world is also evident.

Emphasis on the aspects of the current research

Concepts and theories

Ideas that guide research and illuminate the interpretation of findings.

At this point, operational definitions can emerge that describe the concepts being measured in our research.

Aim of the study and research objectives

Research Questions & Research Hypotheses

Questions that clearly state what the researcher is looking for.

When questions/hypotheses are clearly stated, they are more comprehensible to both readers and the researcher.

Problem

- State the importance of the problem, including theoretical or practical implications.

Review of Relevant Scholarship

- Provide a succinct review of relevant scholarship, including
    - relation to previous work
    - differences between the current report and earlier reports if some aspects of this study have been reported on previously

Hypothesis, Aims, and Objectives

- State specific hypotheses, aims, and objectives, including
    - theories or other means used to derive hypotheses
    - primary and secondary hypotheses
    - other planned analyses
- State how hypotheses and research design relate to one another.

Method

Aim of this chapter is to report exactly how the study was conducted. It is this chapter that must directly satisfy the *replicability criterion.*

It is one of the most crucial chapters of the research report and is highly technically oriented.

Experienced readers (such as members of an evaluation committee) expect to spot certain information in this chapter.

It is a chapter that requires clarity in its writing, not blather!

Sub-chapters included:

Table of contents

Introduction: No title needed. It is the opening paragraph of the chapter. Typically, it includes an explanation of the selected research strategy (quantitative, qualitative, experimental), description of the research design (synchronic, longitudinal, comparative, experimental, case study), description and justification of the data collection. Includes a reminder of the objective of the study and the research questions/hypotheses.

Participants/Sample: Description of the number and features of the participants. Describe what is necessary to explain why they were selected. The sampling technique is also described. The intended and achieved sample size is reported. We do not use the term 'sample' in qualitative research.

Method

The nature as well as the objectives of the research question led to the selection of a qualitative approach. In detail, a Foucauldian Discourse Analysis (FDA) was employed in order to explore the conceptual discursive constructions of spoken sexism while providing the necessary space for diverse and subjective opinions concerning sexist comments to be heard, acknowledging all of them to be of equal value and importance. The present paper focuses exclusively on the discursive construction of spoken sexism as a cause for reaction, emanating from a discourse of resistance, which operates within a broader feminist ideology. The results presented here are a part of the first author's doctoral thesis on discursive constructions of spoken sexism. The analyses in their totality revealed more discursive constructions deriving from other sometimes opposing discourses (i.e., the discourse of hegemonic masculinity), leading to alternative subject positions.

The study took place at the Aristotle University of Thessaloniki, between the years 2016-2021. It was conducted in accordance with the research ethics protocols as defined by the research committee of Aristotle University. The authors received no financial support from any funding agency for the research, authorship, or publication of this article.

Participants and recruitment

Interviews were conducted with thirty women, aged 18-45 years old, who had experienced sexist comments (purposive sampling). In the beginning, a small pool of initial informants was asked to nominate potential participants through their social networks, leading to subsequent snowballing. All participants were adults, their participation was voluntary and pro bono and their informed consent was obtained in writing prior to interviews. The recruitment process continued until data saturation was accomplished, reaching a total number of 30 interviews. When it comes to more detailed demographic information, four participants were university students, four were unemployed, and the rest of them were employed. Except the students, the rest of the participants were tertiary education graduates. Furthermore, eight participants were in a relationship, ten were single, and the rest of them were married. Lastly, seven of them had children. To uphold anonymity, no further demographics are presented.

Materials

A semi-structured interview guide consisting of twenty-two questions was designed and then piloted for the purposes of the present research. The questions were open-ended and covered the various forms that spoken sexism can take (i.e., humour, compliments, insults, etc.). Informed consent forms were also designed and provided to the participants, containing detailed information regarding the aims of the study, the procedure, anonymity, protection of sensitive information, and voluntary participation. The contact details of the researchers were also clearly stated on the consent form.

Measures/Research Instruments/Materials: Description of the tools that enabled data collection. If scales have been used, their sources should be indicated. In qualitative research, the axes of the instrument guide (interview, focus groups, observation, content analysis) are described (not the questions). No results are presented in this sub - section.

Procedure: Information regarding the participant recruitment, issues of informed consent and protection of individuals, the approval of the Research Ethics Committee, descriptions of data collection (place, time, duration) and any issues that arose that other researchers may encounter are mentioned here. Pilot study is also reported.

Results & Discussion

❖ In quantitative/experimental research, the research report includes a *Results* chapter followed by a *Discussion* chapter.

❖ In qualitative research we need a *Discussion* chapter where we present and discuss our findings.

❖ In mixed research we report our findings per research strategy and compile them in the *Discussion* chapter.

The *Discussion* chapter begins by recalling the research objective and restating the research questions/hypotheses. The structure of the chapter follows the structure of the research objectives.

Results and discussion

The analysis of the data generated four themes regarding the psychological distress and negative health consequences of the recent pandemic. The novelty, fatality, and suddenness of the occurrence of the recent pandemic, uncertainty, panic experiences, and a variety of psychological distress symptoms among the participants were reported by the participants.

Theme 1: Maladaptive psychological outcomes of COVID-19

Anxiety, fear, and panic experiences were rampant. The majority of the participants reported experiences of anxiety due to fear, apprehension, uncertainty, perceived loss of the positive aspects of life, threats to their existence, and commune experiences caused by COVID-19:

"I am very afraid that many people will get afflicted by this virus...There is no treatment for this disease." (M_9)

"People may die of hunger and other diseases... We have heard that even the use of currency notes is not safe.......then what is safe?" (F_6)

Helplessness was reported by them due to the apprehension of negative consequences, loss of various sorts of threats to their life, and unpredictability and uncontrollability of the pandemic.

"I am very worried about the consequences... It will stop all the income... How essential needs of food, education, employment, and social interactions will be satisfied if it continues for long." (F_4)

"If anyone of my family members will get ill how we will seek medical help... What will happen I don't know?" (M_2)

"I fear that all citizens of my city will get infected... I have read in the newspaper that one infected person can infect 50000 persons... then what will happen." (M_5)

The disease generated extreme panic experiences. The participants shared the frequent strange physical and psychological experiences due to the uncontrollability of the situation worldwide, unavailability of medicines or vaccines, unexpected negative outcomes, and perceived severe loss after the outbreak of COVID-19:

"The lockdown has stopped all the activities even very important for life... sometimes I feel dizzy and feeling of insertion in my head." (F_4)

"I experience my feelings being out of control and fragmented... I also frequently experience nausea, feelings of illness, heaviness of the body and its parts, especially the heart, and less self-control." (M_12)

Restrictions of face-to-face social and interpersonal interactions, and quarantine culminated in the feeling of loneliness in the participants after the outbreak of the pandemic:

"The disease has resulted in lockdown... how we will interact with one another? If the problem persists for a long (one or two months) it will be very boring and monotonous for everyone." (F_1)

Tiwari, G. K., Rai, P. K., Dwivedi, A., Ray, B., Pandey, A., & Pandey, R. (2023). A Narrative Thematic Analysis of the perceived psychological distress and health outcomes in Indian adults during the early phase of the COVID-19 pandemic. *Psychology: The Journal of the Hellenic Psychological Society, 28*(1), 213–229. https://doi.org/10.12681/psy_hps.28062

Results

Data analysis and report of the findings.

For descriptive statistics: provide the appropriate tables and charts.

For inferential statistics (*t, F* and *x^2*): include the value of the test statistic, the degree of freedom and the probability value. Also, when provided, include sample means (& standard deviation), correlation coefficients, etc.

Chi- square

x^2 (df,n)= value of chi-square, p=…

Correlation

r= +- (coefficient value), p=…

T-test

T (df) = value of t, p=…

One-way Analysis of variance

F ($df_{between\ groups}$, $df_{within\ groups}$)= value of F, p=…

Two-way analysis of variance

F (df, df_{error})= value of F, p=…, η^2=

Discussion

In quantitative research: A summary of the study, including any interpretation, limitations and implications of the results.

- ➢ Examine, interpret and qualify the results
- ➢ Draw inferences and conclusions
- ➢ Emphasize any theoretical or practical implications of the results
- ➢ Present limitations and strength of the current study
- ➢ Provide proposals for further research

Don't include statistical figures, graphs, tables, etc.

Citations

Reference List vs. Bibliography

Refers to sources that are cited in an paper. The author has read and implemented ideas from that sources.

APA, MLA, AMA

Refers all the sources that an author has used in order to complete a paper, regardless if they are cited or not. In bibliography all background reading is being included.

Chicago and Oxford citation style

Four elements of a reference (APA, 2020):
Author: Who is responsible for this work?
Date: When was this work published?
Title: What is this work called?
Source: Where can I retrieve this work?

Citations and Plagiarism

> Cite the work of those individuals whose ideas, theories or research have **directly** influenced your work.

> Cite only works you have read and ideas you have incorporated in your study.

Plagiarism is the act of presenting the words, ideas, or images of another as your own (APA, 2020, p.255).

To avoid plagiarism:

> Paraphrase the ideas of others

> Directly quote the words of others

> Reprint or adapt a table or figure

> Reprint a long text passage or commercially copyrighted test item

References and in-text citations

Figure 8.1 Example of an Appropriate Level of Citation

Humor plays an important role in everyday life, from interacting with strangers to attracting mates (Bressler & Balshine, 2006; Earleywine, 2010; Tornquist & Chiappe, 2015). Some people, however, come up with funny and witty ideas much more easily than do others. In this study, we examined the role of cognitive abilities in humor production, a topic with a long past (e.g., Feingold & Mazzella, 1991; Galloway, 1994) that has recently attracted more attention (Greengross & Miller, 2011; Kellner & Benedek, 2016). Humor production ability is measured with open-ended tasks (Earleywine, 2010), the most common of which involves asking participants to write captions for single-panel cartoons (for a review, see Nusbaum & Silvia, 2017).

Note. The authors have provided citations to representative sources for each new idea in the text. Common knowledge (here, the idea that some people come up with funny ideas more easily than do others) does not require a citation.

In Greek texts replace ";" with "·"

When we include more than one author in brackets, the order is alphabetical.

Publication Manual of the American Psychological Association, 7ᵗʰ Edition, 2020.

Figure 8.2 Correspondence Between a Reference List Entry and an In-Text Citation

Reference list entry:	Alexander, P. A. (2018). Past as prologue: Educational psychology's legacy and progeny. *Journal of Educational Psychology, 110*(2), 147–162. https://doi.org/10.1037/edu0000200
Parenthetical citation:	(Alexander, 2018)
Narrative citation:	Alexander (2018)

Note. The four elements of a reference list entry include the author (in purple), the date (in blue), the title (in yellow), and the source (in green). The in-text citations that correspond to this reference include the last name of the author and year of publication, which match the information in the reference list entry.

Table 8.1 Basic In-Text Citation Styles

Author type	Parenthetical citation	Narrative citation
One author	(Luna, 2020)	Luna (2020)
Two authors	(Salas & D'Agostino, 2020)	Salas and D'Agostino (2020)
Three or more authors	(Martin et al., 2020)	Martin et al. (2020)
Group author with abbreviation First citation [a]	(National Institute of Mental Health [NIMH], 2020)	National Institute of Mental Health (NIMH, 2020)
Subsequent citations	(NIMH, 2020)	NIMH (2020)
Group author without abbreviation	(Stanford University, 2020)	Stanford University (2020)

[a] Define the abbreviation for a group author only once in the text, choosing either the parenthetical or the narrative format. Thereafter, use the abbreviation for all mentions of the group in the text (see Section 8.21).

Verbatim quotations

Table 8.2 Examples of Direct Quotations Cited in the Text

Correct	Incorrect	Rationale
Effective teams can be difficult to describe because "high performance along one domain does not translate to high performance along another" (Ervin et al., 2018, p. 470).	Effective teams can be difficult to describe because "high performance along one domain does not translate to high performance along another." (Ervin et al., 2018, p. 470)	The period marking the end of a sentence should follow the citation, not precede it.
"Even smart, educated, emotionally stable adults believe superstitions that they recognize are not rational," as exemplified by the existence of people who knock on wood for good luck (Risen, 2016, p. 202).	"Even smart, educated, emotionally stable adults believe superstitions that they recognize are not rational (Risen, 2016, p. 202)," as exemplified by the existence of people who knock on wood for good luck.	The citation should be outside the quotation marks, not within them.
Biebel et al. (2018) noted that "incorporating the voice of students with psychiatric disabilities into supported education services can increase access, involvement, and retention" (p. 299).	Biebel et al. (2018) noted that "incorporating the voice of students with psychiatric disabilities into supported education services can increase access, involvement, and retention." (p. 299)	The period marking the end of the sentence should follow the page number, not precede it.
"Some people are hilarious, others are painfully unfunny, and most are somewhere in between," wrote Nusbaum et al. (2017, p. 231) in their exploration of humor.	"Some people are hilarious, others are painfully unfunny, and most are somewhere in between," (p. 231) wrote Nusbaum et al. (2017) in their exploration of humor.	The page number should be within the same parentheses as the year when the quotation precedes the narrative citation.
The item read, "What were the best aspects of the program for you?" (Shayden et al., 2018, p. 304).	The item read, "What were the best aspects of the program for you"? (Shayden et al., 2018, p. 304).	The question mark that ends the quotation should appear within the quotation marks.
In 2018, Soto argued that "more similar stimuli, such as those coming from the same modality, produce more configural processing" (p. 598).	In 2018, Soto argued that "more similar stimuli, such as those coming from the same modality, produce more configural processing" (Soto, 2018, p. 598).	It is not necessary to repeat the author and year within parentheses when they already appear in the narrative.

8.27 Block Quotations (40 Words or More)

If a quotation contains 40 words or more, treat it as a block quotation. Do not use quotation marks to enclose a block quotation. Start a block quotation on a new line and indent the whole block 0.5 in. from the left margin. If there are additional paragraphs within the quotation, indent the first line of each subsequent paragraph an additional 0.5 in. Double-space the entire block quotation; do not add extra space before or after it. Either (a) cite the source in parentheses after the quotation's final punctuation or (b) cite the author and year in the narrative before the quotation and place only the page number in parentheses after the quotation's final punctuation. Do not add a period after the closing parenthesis in either case.

Block quotation with parenthetical citation:
Researchers have studied how people talk to themselves:

> Inner speech is a paradoxical phenomenon. It is an experience that is central to many people's everyday lives, and yet it presents considerable challenges to any effort to study it scientifically. Nevertheless, a wide range of methodologies and approaches have combined to shed light on the subjective experience of inner speech and its cognitive and neural underpinnings. (Alderson-Day & Fernyhough, 2015, p. 957)

Publication Manual of the American Psychological Association, 7th Edition, 2020.

Table 9.1 How to Create a Reference When Information Is Missing

Missing element	Solution	Template	
		Reference list entry	In-text citation
Nothing—all elements are present	Provide the author, date, title, and source of the work.	Author. (Date). Title. Source.	(Author, year) Author (year)
Author	Provide the title, date, and source.	Title. (Date). Source.	(Title, year) Title (year)
Date	Provide the author, write "n.d." for "no date," and then provide the title and source.	Author. (n.d.). Title. Source.	(Author, n.d.) Author (n.d.)
Title	Provide the author and date, describe the work in square brackets, and then provide the source.	Author. (Date). [Description of work]. Source.	(Author, year) Author (year)
Author and date	Provide the title, write "n.d." for "no date," and then provide the source.	Title. (n.d.). Source.	(Title, n.d.) Title (n.d.)
Author and title	Describe the work in square brackets, and then provide the date and source.	[Description of work]. (Date). Source.	([Description of work], year) [Description of work] (year)
Date and title	Provide the author, write "n.d." for "no date," describe the work in square brackets, and then provide the source.	Author. (n.d.). [Description of work]. Source.	(Author, n.d.) Author (n.d.)
Author, date, and title	Describe the work in square brackets, write "n.d." for "no date," and then provide the source.	[Description of work]. (n.d.). Source.	([Description of work], n.d.) [Description of work] (n.d.)
Source	Cite as a personal communication (see Section 8.9) or find another work to cite (see Section 9.37).	No reference list entry	(C. C. Communicator, personal communication, month day, year) C. C. Communicator (personal communication, month day, year)

Publication Manual of the American Psychological Association, 7th Edition, 2020.

Academic writing

[...] The next assumption is everything we know about the structuring of scientific discourse: structure, hierarchy, comprehension, short structured sentences, explanation, argumentation, documentation, correct use of grammar and its rules, the short paragraph, links and connections between them, etc. However, as important as all these are, they are not defined by specific rules, much less taught systematically and in depth by our education system.

Structured, synthetic scientific discourse is the cornerstone of academic discourse. It is this discourse that has led (and continues to lead) scientists, poets and writers, people of the reed and the pen, to masterfully manipulate language and masterfully synthesize facts with feelings, descriptions with narratives, argumentation with documentation [...].

Lionarakis, A. (2014). The classification and modeling of scientific discourse for the design and development of educational materials. Oral presentation at the 5th Summer University entitled "*When Hollywood met Aristotle: 2,500 years of scientific discourse*", pp. 2.

Vital features of academic writing

Provide evidence with reference to reliable sources

Appropriate and documented use of suitable terminology

Organization/structuring of the text

Critical view and Interpretations

Clarity, Accuracy, Simplicity, Synthesis