



California State University, Sacramento

Department of Communication Sciences and Disorders

GRADUATE (AuD) SYLLABUS

Class Information

Semester/Year: Spring/2026	Course: CSAD 621: Research Methods in Audiology	Section: 01
Meeting Days: Tuesday	Meeting Times: 1:00 – 3:50 PM	Location: Folsom Hall 2204
Instructor: Hamid Motallebzadeh, Ph.D.	Email: h.motallebzadeh@csus.edu	Phone: 916-278-3589
Office Location: 2404E	Office Hours/Appointments: Monday and Wednesday 10:30-11:30 AM, Thursday 12:30-1:30 PM by appointment only.	

Catalogue Course Description

CSAD 621: Research Methods in Audiology 3 Units

Prerequisite(s): Admission to Doctor of Audiology program; CSAD 611; CSAD 612; CSAD 613; CSAD 614

Term Typically Offered: Spring only.

Description: Treatment of human subjects and research methods. Overview of the research process, including research designs, development of data collection instruments, and data collection, and introduction to basic statistical concepts for the Au.D. doctoral project. Ethical considerations of research are also discussed.

Place of Course in Program

This course serves as an introduction to research methods, design, and analysis used in audiology. Students will learn how to critically evaluate research for future clinical practice. The major writing assignment in this course is a full research paper, including data analysis. In addition, the course provides guidance with developing a proposal for the Au.D. doctoral project, which will be completed under the supervision of a supervising faculty member and the student's doctoral project committee. As a GWI course, the content will help students to understand and gain experience with major writing conventions and practices within audiology, and provide opportunities for students to further develop their writing skills through reflection, feedback, and revisions.

Table 1: Sacramento State Graduate Learning Goals (GLG)

Sacramento State Graduate Learning Goals (GLG)	Addressed by this course (Y/N)
Disciplinary knowledge: <i>Master, integrate, and apply disciplinary knowledge and skills to current, practical, and important contexts and situations.</i>	Y
Communication: <i>Communicate key knowledge with clarity and purpose both within the discipline and in broader contexts.</i>	Y
Critical thinking/analysis: <i>Demonstrate the ability to be creative, analytical, and critical thinkers.</i>	Y
Information literacy: <i>Demonstrate the ability to obtain, assess, and analyze information from a myriad of sources.</i>	Y
Professionalism: <i>Demonstrate an understanding of professional integrity.</i>	Y

Intercultural/Global Perspectives: Demonstrate relevant knowledge and application of intercultural and/or global perspectives.	Y
Research: Conduct independent research resulting in an original contribution to knowledge in the focused areas of their graduate program.	Y

Course Learning Outcomes

GRADUATE LEARNING OUTCOMES

Mastery of each student-learning outcome listed below is indicated by a grade of B or better on each component of the corresponding measures listed in the table. Students are required to track their progress towards meeting each learning outcome and must make an appointment with the instructor for any grade equal to or less than a B. The instructor will suggest strategies to help you establish competence and knowledge in these areas. See the program's Academic Performance Improvement Plan (APIP) policy at https://www.csus.edu/college/health-humanservices/communication-sciences-disorders/_internal/_documents/audiology/casad-apip-policy-spring-2020.pdf

You should track your progress towards meeting each learning outcome by listing your grades on the table below over the course of the semester.

CSAD 621 GRADUATE EXPECTED LEARNER OUTCOMES (ELO)

Upon completion of this course, students will be able to:

1. State the steps of the scientific method.
2. Describe the importance of research and the role of audiologists in evidence-based clinical research.
3. Explain the history of scientific research, including human subjects research, ethics, and authorship.
4. Describe the importance of the scientific method.
5. List the levels of research evidence.
6. Differentiate between research designs and methods commonly used in audiology research.
7. Perform a literature search on relevant research for a topic of interest.
8. Develop a testable research question and hypothesis.
9. Critique research articles and their application to evidence-based practice.
10. Perform basic statistical tests, including uses, assumptions, limitations, and applications.
11. Describe research designs, methodologies, and analyses used in qualitative research.
12. Design a research proposal for the Au.D. capstone project with guidance from a supervising audiology faculty member and committee.

GWI GENERAL LEARNING GOALS

By the end of the semester, students will:

1. Understand the major research and/or professional conventions, practices, and methods of inquiry of the discipline.
2. Understand the major formats, genres, and styles of writing used in the discipline.
3. Practice reading and writing within the discipline.
4. Practice reading and writing as a learning process that involves peer and instructor feedback, revision, critical reflection, and self-editing.

ELO	Component Indicating Competency	Grade(s) Received
1-5, GWI 1, 3	Exam I	
1, 6, 8-10, GWI 3	Exam II	
1-6, 8-11, GWI 3	Exam III	
7, 9, GWI 2, 3, 4	Annotated bibliography	
7-9, GWI 1-4	Part I of final paper	

6-10, GWI 1-4	Part II of final paper	
7-10, GWI 3, 4	Final paper	
9, GWI 1, 3, 4	Discussion board posts	
9, GWI 1, 3, 4	Participation in peer reviews	
12	Proposal and presentation	
GWI 1-4	APA modules and quizzes	
1-6, 9-11, GWI 1-3	Quizzes	

Textbooks and Materials

Required Textbooks and Materials

<https://opentext.wsu.edu/carriecuttler/> See Canvas for other readings

American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). <https://doi.org/10.1037/0000165-000>

Microsoft Office or equivalent (Word, Excel, PowerPoint)

Adobe Acrobat for PDFs

This course utilizes Canvas. All course materials will be available on Canvas.

Course Requirements/Components

Course Format

Lecture.

Class Preparation

All required readings are for the date listed in the course schedule, not the following class period. Students are responsible for all assigned readings, whether discussed in class or not. Students are expected to actively participate in class discussions and are required to have read the assigned material prior to class meetings.

Class Attendance

Classroom attendance is necessary for this course. No more than three unexcused absences are allowed. Students must email the instructor if they are not able to attend the class and are responsible to learn the material that was covered during their absence. APIP will be initiated for students who do not meet the attendance policies.

Exams & Makeups

Students are expected to be in the classroom on time so that class can begin on time. All lectures will be delivered synchronously in the event that the course is delivered online. If a student is unable to attend class, it is the student's responsibility to notify the instructor before class. Students who miss class are responsible for obtaining the notes from a classmate and are encouraged to meet with the instructor to review any missed content; recording of class for absences is not permitted. Attendance on peer review days is part of the peer review participation grade.

If you are sick, stay home and do not attend class. Notify your instructor. Please self-diagnose if you are experiencing any COVID- like symptoms (fever, cough, sore throat, muscle aches, loss of smell or taste, nausea, diarrhea, or headache) or have had exposure to someone who has tested positive for COVID contact Student Health & Counseling Services (SHCS) at 916-278-6461 to receive guidance and/or medical care. You are asked to report any possible COVID related illnesses/exposures to SHCS via this link COVID-19 Illness/Exposure Report Form: <https://sacstateshcs.wufoo.com/forms/covid19-illnessexposure-report/> Expect a call from SHCS within 24 hours. The CDC provides a good source of information regarding COVID-19 and a way to self-check symptoms: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>

Makeups are allowed only with documentation of need (e.g., doctor's note, police report). Make-up exams will be scheduled during the last week of classes and must be completed at the testing center (\$6). If you plan to take the exams in the Testing Center, make sure to book at least 2 weeks in advance, for the same day within 1 hour of the scheduled test hour. Exams are closed book with no prepared notes and composed of True/False, multiple choice, short answer, and descriptive questions. Students remain individually responsible for being aware of your exam dates and times posted in the course syllabus or announcements in the class or Canvas.

Class Assignments:

Course grades will be based on discussion board posts, assignments for the final and associated peer and/or instructor reviews, APA writing and style quizzes, a proposal and presentation, quizzes, and exams. Any instances of academic misconduct will result in a 0 on that assignment or exam and will be reported according to department and campus-level policies, and these may result in a score of 0 assigned to any involved students. Issues with technical problems must be accompanied by a screenshot showing the date and time on the computer and browser, and an email to IT for support when emailing the instructor; other issues cannot be otherwise verified and will not be given consideration. Feedback is an essential component of this GWI course, so an APIP may be initiated for professionalism or communication issues related to written assignments.

Rubrics for all assignments will be available on Canvas. Turnitin.com will be used for written assignments submitted online.

Recording of class is not permitted unless the student has received accommodations from SSWD that allow for recording of lectures.

For students who become ill or who are placed under quarantine during the COVID-19 pandemic, contact the instructor so that due dates for the below assignments can be adjusted (student will not be penalized in these cases). For information about COVID-19 assessment and remote learning, students are directed to the Sac State mobile app.

Discussion board posts: There will be three discussion board posts that are aimed at helping students focus on and apply the course content to the field of audiology and their research project design.

Quizzes: There will be five quizzes in Canvas for this course. Quizzes will cover a range of topics.

Annotated bibliography: The annotated bibliography is intended to provide direction for students gathering sources for the literature review.

Literature review: Students will submit a literature review based on the proposed research question, hypotheses, and annotated bibliography. Additional information about the literature review assignment will be available on Canvas.

Final paper: At the end of the semester, students will submit a paper that has been reviewed by peers and the instructor throughout the course. Information about the final paper is available on Canvas.

Proposal and presentation: Students will submit a proposal for the doctoral research project by the end of the semester. Peers and the instructor will give feedback regarding the feasibility, methodological rigor, and logic. Students will present their projects to the class at the end of the semester. Students are advised to consult program faculty throughout the process. The program assignment is available on Canvas.

Peer reviews participation: Students will be involved in the review of other students' written assignments throughout the semester. See course schedule for due dates and turnaround times. A rubric for the peer reviews will be available on Canvas.

APA modules and quizzes: There are two APA writing and style quizzes in the course.

Attendance: Attendance will be taken in this course. See Canvas for the attendance policy and initiation of an APIP for attendance issues.

Exams

Exam absences: An unexcused absence will result in zero points for the exam. An excused absence can only be granted by the course instructor. It is the student's responsibility to contact the instructor within the first two weeks of the semester if he/she is unable to sit for the exam. Family members/significant others may contact the course coordinator on behalf of students who are hospitalized or are otherwise unable to speak directly with the course instructor. It is the student's responsibility to contact the instructor about rescheduling the exam. Scheduling conflicts due to work or family travel are not eligible for make-up exams; these absences will result in a zero on the exam. Students with accommodations should notify the instructor early in the semester to allow for accommodations for the full semester (i.e., a student who notifies the instructor of accommodations halfway through the semester may have those accommodations for the remaining assignments of the semester; past assignments and exams cannot be retaken). If a student is given permission to miss an exam, a make-up exam will be administered during the week prior to the final exam. The make-up exam may be formatted differently from the original exam at the discretion of the course instructor. Technical issues during the exam must be brought to the attention of the instructor immediately, and documentation (e.g., screenshots showing the time/date and error, email to IT, etc.) must be provided if outside of a proctored setting.

Exam procedures: All exams are closed-book and closed-note; no outside resources are permitted unless otherwise noted. The exam period is 75 minutes.

Late Assignments

Late assignments are accepted with a 20% penalty per day late up to 5 days late (at which point the grade would be 0%). This is true for both individual and group assignments.

Audio Recording

Students may audio record lectures only if they have official accommodations.

Student travel policy

https://www.csus.edu/college/health-human-services/communication-sciences-disorders/_internal/_documents/policy/csad-student-travel-policy.pdf

If you are sick, stay home and do not attend class. Notify your instructor. Please self-diagnose if you are experiencing any COVID- like symptoms (fever, cough, sore throat, muscle aches, loss of smell or taste, nausea, diarrhea, or headache) or have had exposure to someone who has tested positive for COVID contact Student Health & Counseling Services (SHCS) at 916-278-6461 to receive guidance and/or medical care. The CDC provides a good source of information regarding COVID-19 and a way to self-check symptoms: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.

Students must adhere to COVID-19 policies as described on the CSUS website. Please see <https://www.csus.edu/compliance/risk-management/coronavirus.html> and <https://www.csus.edu/return-to-campus/return-to-campus-faq.html> for more information and updates.

TENTATIVE Course Schedule/Outline

Table 2: Course schedule and outline

Date	Topic/Class Content	Exam/Quiz	Assignment
1/27	Introduction to course and syllabus review Principles of scientific methods		
2/3	Pyramid of evidence Databases and literature search		Discussion board post I
2/10	No class (conference) Watch presentation of our librarian		
2/17	Introduction to systematic review and meta-analysis	Quiz I	Research question and hypotheses development plan
2/24	Research Design: Inquiry and Discovery Structure of scientific manuscripts		Discussion board post II Peer review I (RQ)
3/3	Qualitative and quantitative research Plagiarism, Copyright, and Citation Ethics	Quiz II	Annotated bibliography
3/10	References and citation APA Guidelines I Essentials and tools (MS Office) I	Exam I	Literature review
3/17	APA Guidelines II Essentials and tools (MS Office) II		Research proposal CITI Training
3/24	Spring break		
3/31	Proposal topics Basic Statistics I		Discussion board post III
4/7	Proposal structure Basic Statistics II	Exam II	APA Training Module
4/14	Sensitivity, specificity and accuracy		CITI Training
4/21	Effective presentation Poster design	Quiz III	Peer review II (Proposal)
4/28	Introduction to artificial intelligence Effective and responsible use of AI		Discussion board post IV
5/5	Ethics in human subject research (Guest lecturer) Final paper preparation		Discussion board post V
5/12	Proposal presentation	Exam III	Final paper

Grading Policy

Students should track their progress towards meeting each learning outcome by listing their grades on the table below over the course of the semester.

The Final Grade will be based on a percentage of total points (100) and will be assigned as follows:

Category	Assignment	Word Count	Points	% of Grade
Writing (65%)	Research question and hypotheses development plan	500	50	5
	Annotated bibliography	1000	100	10
	Literature review	1500	150	15
	Research proposal	1000	100	10
	Discussion board posts	5 x 250	5 x 20 =100	10
	Final paper	2500	150	15
Other (35%)	Exam	N/A	3 x 50 = 150	15
	Quiz	N/A	3 x 20 = 60	6
	Peer Reviews (RQ and Proposal)	N/A	2 x 30 = 60	5
	CITI Training	N/A	20	2
	APA Training Module	N/A	20	2
	Proposal Presentation	N/A	50	5

Course Grade Scheme

%	Letter
93 – 100	A
90 – 92	A-
87 – 89	B+
83 – 86	B
80 – 82	B-
77 – 79	C+
73 – 76	C
70 – 72	C-
67 – 69	D+
63 – 66	D
60 – 62	D-
< 60	F

Knowledge And Skills Acquisition (KASA) For Certification in Audiology

CSAD 621 Research Methods in Audiology

Scientific and Research Foundations

- Basic science skills (e.g., scientific methods, critical thinking)

Standard II-A: Foundations of Practice

- A13. Principles of research and the application of evidence-based practice (i.e., scientific evidence, clinical expertise, and client/patient perspectives) for accurate and effective clinical decision making

ACAE Competencies

Foundation:

Critically evaluate the research foundation for hearing, balance and communication sciences.

Online Resources

CSUS Library

Access the CSUS Library is a requirement of this course. Please become familiar with library access and login information as quickly as possible. As a CSUS student you should have free access to the library and its resources. The Department has access to the Health Sciences Librarian Rachel Stark. She is available to you for assistance and questions on how to utilize the library effectively. <https://library.csus.edu/directory/rachel-stark>

CANVAS

This course is posted on CANVAS. All lecture material and required readings not in the textbook will be available only on CANVAS. Access to CANVAS is a requirement of this course. Laptops are available to loan out as needed. Please contact the Department for further information. Grades and statistics for the tests will be posted on CANVAS. Please forward interesting links to me as I will post them for the benefit of the entire class. All submissions must be in WORD or PDF format.

Academic Conduct

Students enrolled in the Au.D. program must adhere to the Department and University policies on academic misconduct. Please see the department's policy on academic misconduct ("Policy on Student Academic and Clinical Conduct"). The following are expectations for professional behavior in the classroom:

- Ethics: Students must uphold the ethical standards set forth by professional bodies in the field (see Appendices C and D).
- Respect: Students should demonstrate respect to their peers, instructors, and staff.
- Feedback: Students are expected to self-reflect and modify their work in response to feedback, while displaying non-defensive behavior to suggestions.
- Health: Students should maintain their personal wellness and health, attending to any needs in a timely fashion in order to support their academic and professional growth.
- Attire: Students should dress appropriately for class. Classes may be held in clinic space, so students are expected to observe the clinic dress code.
- Accountability: Students are expected to be accountable, honest, and professional for their activities and communications. The general principles of ethical behavior should be applied to their coursework, evaluations, and examinations.
- Language: Students should demonstrate professional oral and written communication, including emails. Discretion and professional language should be used in all modalities, emphasizing constructive rather than reactive use.
- Scholarship: Students should take an active role in their learning, recognizing their deficiencies and seeking to correct them, as part of their commitment to lifelong learning.
- Effort: Students should collaborate and work to complete tasks and assignments on time or by the set deadline. Students are expected to follow through on all activities while maintaining professionalism and intellectual curiosity.

Email

Students in the Au.D. program are required to maintain an active CSUS email address, which is linked to the student ID number. Official emails will be sent through CSUS email. Students are expected to regularly check their CSUS emails.

Additional Information

Attitudes & Technical Skills Required:

You will find that the following attitude will significantly contribute to your success in this online class:

- A positive attitude towards technology.
- An open mind towards online resources.
- Willingness to share your experiences with others.
- Strong analytical and critical thinking skills for when you "get stuck".
- Resourcefulness - don't be afraid to explore and ask questions.
- Time management

Technical Assistance:

Seek help when you can't access Canvas or class materials.

- For technical assistance, contact the IRT Help Desk. Visit AIRC 2005 during [open hours](#) to speak with the IRT Service Desk Team, or call (916)278-7337. [IRT website](#).
- For assistance with course materials, contact your instructor.

Commitment to Integrity:

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

Sac State's Academic Honesty Policy & Procedures:

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades." Read more about Sac State's Academic Honesty Policy & Procedures at the following website: <https://www.csus.edu/umannual/student/stu-100.htm>.

Definitions: At Sac State, "cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means." **Plagiarism** is a form of cheating. At Sac State, "plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution." Source: Sacramento State University Library Note: Any form of academic dishonesty, including cheating and plagiarism, shall be reported to the [Office of Student Conduct](#).

Department Policy on Use of APA format

The Department of Communication Sciences and Disorders requires the use of the APA format and style. All students are required to reference the APA manual. All assignments are to be composed using APA format and style unless otherwise noted.

Understand When You May Drop This Course:

It is the student's responsibility to understand when he/she need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include: (a) documented and significant change in work hours, leaving student unable to attend class, or (b) documented and severe physical/mental illness/injury to the student or student's family. Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a compelling extenuating circumstance. All incomplete course assignments must be completed by the department's policy.

Inclusivity:

Students in this class are encouraged to be active participants in all aspects of the course, including but not limited to lectures, synchronous and asynchronous activities, discussion posts, etc. Each of us must show respect for each other, as our class represents a diversity of beliefs, backgrounds, and experiences. This enriches all of our learning experiences together. Our individual differences deepen our understanding of one another and the world around us, rather than divide us. In this class, people of all ethnicities, genders and gender identities, religions, ages, sexual

orientations, disabilities, socioeconomic backgrounds, regions, and nationalities are strongly encouraged to share their rich array of perspectives and experiences. If you feel your differences may in some way isolate you from our classroom community, or if you have a specific need, please contact the instructor early in the semester. Your instructor will work with you to ensure that you become an active and engaged member of our class and community.

Equal Access:

California State University-Sacramento, Department of Communication Sciences and Disorders, seeks to provide equal access to its programs, services, and activities for people with disabilities. If you have a documented disability and verification from the Disability Access Center (DAC), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to DAC and meet with a DAC counselor to request special accommodation before classes start.

Sacramento State Disability Access Center offers a wide range of support services and accommodations for students in order to ensure students with disabilities have equal access and opportunity to pursue their educational goals. Working collaboratively with students, faculty, staff and administrators, DAC provides consultation and serves as the information resource on disability related issues to the campus community. DAC is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) or (916) 278-7239 (TDD only) or via email at dac@csus.edu

Basic Needs Support

If you are experiencing challenges with food, housing, financial or other unique circumstances that are impacting your education, help is just a phone call or email away! The CARES office provides case management support for any enrolled student. Email the CARES office at cares@csus.edu to speak with a case manager about the resources available to you. Check out the [CARES website](#).

Title IX

The University requires faculty and staff to report any personal disclosures of sexual misconduct including rape, dating/domestic violence and stalking to the Title IX Coordinator. Students who do not wish to report their experience to me or the Title IX Coordinator may speak to someone confidentially by contacting Student Health and Counseling Services.

Sac State is committed to supporting students and fostering a campus environment free of sexual misconduct and gender-based discrimination. If a student chooses to disclose to a faculty or staff member an experience related to sexual misconduct which includes rape, relationship violence, or stalking, all faculty and staff are obligated to report this disclosure to the university's Title IX Coordinator. Sac State's Title IX Coordinator is Mary Lee Vance. Please email equalopportunity@csus.edu or (916) 278-5770. Upon receipt of the report, the Title IX Coordinator will contact you to inform you of your rights and options as a survivor and connect you with support resources, including resolution options for holding accountable the person who harmed you. Students who elect not to discuss their experience with the Title IX Coordinator can speak confidentially to the following confidential resources:

Student Health & Counseling Services at The WELL On Campus
Phone Number: 916-278-6461
Website: www.csus.edu/shcs

Campus Confidential Advocate – Laura Swartzen
Email: weave@csus.edu
On Campus Phone Number: 916-278-5850 (during business hours)
WEAVE 24/7 Hotline: 916-920-2952

CSUS Grading Policy

Information for students regarding grading is provided here:

<https://www.csus.edu/umannual/acad/umg05150.htm>

As an instructor, one of my primary responsibilities is to help foster a safe learning environment in the classroom and throughout our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. In this class, sexual topics may emerge

in readings, assignments, and class discussions. Making a personal connection with the topics addressed in this class can be meaningful. However, please be advised that the University requires faculty and staff to report any personal disclosures of sexual misconduct including rape, dating/domestic violence and stalking to the Title IX Coordinator. Students who do not wish to report their experience to me or the Title IX Coordinator may speak to someone confidentially by contacting the following confidential resources:

Other Resources

- The Office of Student Affairs maintains a list of campus resources/centers: <https://www.csus.edu/center/>
- Testing Center: <https://www.csus.edu/student-affairs/centers-programs/testing-center/>
- Library: <https://library.csus.edu/> for consultation: Rachel Stark, MS, AHIP, stark@csus.edu
- Disability Access Center: <https://www.csus.edu/student-affairs/centers-programs/disability-access-center/>
- Student Health and Counseling Services at The WELL: <https://www.csus.edu/student-life/health-counseling/>
- Student Academic Success and Education Equity Programs: <https://www.csus.edu/student-affairs/retention-academic-success/>
- Crisis Assistance and Resource Education Support (CARES): <https://www.csus.edu/student-affairs/crisis-assistance-resource-education-support/>
- CHHS Student Success Center: <https://www.csus.edu/college/health-human-services/student-success/>
- Reading & Writing Center: <https://www.csus.edu/undergraduate-studies/writing-program/reading-writing-center.html>
- Peer & Academic Resource Center: <https://www.csus.edu/student-affairs/centers-programs/peer-academic-resource/>
- SMART Thinking (tutoring resource): https://www.csus.edu/student-affairs/centers-programs/degrees-project/_internal/_documents/smarthinking.pdf