PHDED901 - COLLECTION AND ANALYSIS OF RESEARCH DATA I

Course Title	COLLECTION AND ANALYSIS OF RESEARCH DATA I				
Course Code	PHDED901				
Course Type	CORE				
Level	DOCTORAL				
Year / Semester	1ST/FALL				
Teacher's Name	PANAYIOTIS LOUCA				
ECTS	10	Lectures / week	2H	Laboratories / week	1H
Course Purpose and Objectives	The course aims to enable students to construct a comprehensive understanding of research methods in education. Furthermore, the course aims to facilitate students to develop skills and competences related to the planning and materialisation of doctoral dissertation and other research activities. It focuses on data collection and analysis as means for reaching to justified answers to research questions. To course covers the fundamental methodological approaches to educational research, quantitative and qualitative, as well as mixed methods approaches. The course adopts a critical approach towards research methods, through which it presents students with their advantages, disadvantages, limitations and epistemological differences. Regarding qualitative data elicitation and analysis, students are given opportunities to develop their interviewing/observation skills and are given various qualitative data analysis techniques (i.e. constant comparative method). The course also focuses on sampling methods and techniques, as well as various methods for collecting and/or eliciting data, either using qualitative or quantitative data collection tools. Emphasis is given on the evaluation of the validity and reliability of quantitative and qualitative data. Students are guided to utilise statistical indices (descriptive and inferential) to identify relationships between variables or differences between sample groups or measurements. Students are also facilitated in conducting preliminary analyses regarding data normality and potential outliers. Finally, students are trained to apply various inferential statistics to assess statistical significance of the above (i.e. t-tests, one-way ANOVA, correlation, Exploratory Factor Analysis.				
Learning Outcomes	Students are expected to: 1. Apply appropriate methodological approach for the collection, organisation, encoding, and analysis of quantitative data, having in mind the advantages and limitations of quantitative research. 2. Apply appropriate methodological approach for the collection, organisation, encoding, and analysis of quantitative data, having in mind the advantages and limitations of qualitative research. 3. Analyse and consider ethical issues arising during data collection and analysis, as well as during the reporting of research results.				

	4. Apply mixed approach methods and use triangulation to maximise the validity of research outcomes. 5. Select the appropriate sampling method and/or technique, when given a specific research context. 6. Design experimental or quasi-experimental designs to investigate research hypothesis and/or answer research questions. 7. Evaluate the validity and reliability of data they collect, or of those collected by others. 8. Refer to internal and external validity with accuracy and identify potential threats in their own and/or others research designs. 9. Identify and/or define the population investigated by a research and select a representative sample by applying scientific data sampling techniques, being aware of each technique's advantages and limitations. 10. Design, develop valid and reliable questionnaires, tests, observation schemes and other data collection tools, and evaluate them, using statistical analysis (i.e. exploratory factor analysis, reliability analysis). 11. Make use of descriptive statistics indices to present the central tendency and variance of variable measurements and identify statistically significant differences between groups and relations between variables. 12. Evaluate the normality of variable measurements and identify potential outliers. 13. Apply inferential statistics tests to quantitative data such as t-test, correlation, one-way ANOVA and Exploratory Factor Analysis. 14. Conduct qualitative interviews by applying basic principles such as establishing rapport, asking open-ended questions, avoiding bias, adopting a dynamic question protocol.		
Prerequisites	NO	Required	NONE
Course Content	1. Comparison between Qualitative and Quantitative research 2. Ethics in data collection and results disseminations. Ethics in conducting research with children. 3. Mixed methods approaches. Triangulation. 4. Reviewing the literature and Literature Review using online databases and search tools. Strategic literature review. 5. Linking research questions with data collection. Identifying variables and planning research. 6. Quantitative research tools: questionnaires, tests, structured observations, rubrics. Validity assessment before and after data collection. 7. Qualitative research tools: qualitative interview, group interview, clinical interview, observation, field notes. Reflexivity and validity of data in qualitative research. 8. Sampling methods and techniques. Representativeness issues. Appropriate sample size. Sampling in qualitative research. 9. Types of variable and measurement scales. Data normality and outliers. Parametric and non parametric statistics. Effect size. 10. T-tests, one-way ANOVA, Pearson's correlation, Exploratory Factor Analysis using IBM SPSS. 11. Data collection using the internet. WEBDATANET, websm.org and the www.1ka.si platform for conducting online research.		

Teaching Methodology	The course is taught using a variety of teaching methodologies that include lecturing, project-based learning, hands-on training, collaborative approach.
Bibliography	Cohen, L., & Manion, L., Morrison, K. (2017). *Research methods in education* (8th ed.). New York: Routledge.[1] Denzin, N. K., & Lincoln, Y. S. (2011). *Handbook of qualitative research* (4th ed.). London: Sage Publications. Kline, R. B. (2010). *Principles and practice of structural equation modelling*. New York: Guilford press. Silverman, S. J., Locke, L. F., & Spirduso, W. W. (2007). *Proposals that work: A guide for planning dissertations and grant proposals*. London: Sage Publications. Creswell, J. W. (2008). *Qualitative, quantitative, and mixed method approaches.* London, Sage. Biesta, G. J. J., & Burbules, N. C. (2002). *Pragmatism and educational research.* London: Falmer. Denzin, N. K., & Lincoln, Y. S. (Eds.). (2007). *Collecting and interpreting qualitative materials*. London: Sage Publications, Incorporated. Green, J., Camilli, G., & Elmore, P. (Eds.). (2006). *Handbook of complementary methods in education research*. New Jersey: Lawrence Erlbaum Associates, Inc., Publishers. Silverman, D. (2006). *Interpreting qualitiative data,* (3rd ed.). London: Sage. Silverman, D. (2009). *Doing qualitative research: A practical handbook*, (3rd ed.). London: Sage. Wellington, J. (2000). *Educational research: Contemporary issues and practical approaches.* London: Continuum.
Assessment	Final Written Examination (50%) Qualitative Research Project (20%) Quantitative Research Project (30%)
Language	Greek