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“I wish I knew what I know now”: Exploring Psychology Undergraduate Students’ Experiences When Learning About Qualitative Research and CAQDAS

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Abstract

Learning to conduct qualitative research and use computer-assisted qualitative data analysis software (CAQDAS) can be challenging, which is why it may be more effective to introduce the craft of qualitative research to undergraduate students who have the time and space to learn, even make mistakes, and ultimately build a better understanding for their future studies and careers. There are relatively few published studies sharing insights on teaching qualitative research and CAQDAS to undergraduate students. This descriptive qualitative case study explores students’ experiences in a qualitative research course for undergraduate psychology students, with the aim of discerning how feasible learning both qualitative research and CAQDAS was for these students as well as how they perceived learning about these contents. Data was collected from an online open-ended survey from two consecutive generations of students that completed the course. Students found the course to be a challenging but worthwhile experience: new knowledge and skills were gained that they felt would be useful for their professional and even personal lives. These students recognized that the qualitative research course was an important complement to their predominantly quantitative curriculum. By teaching undergraduate students about qualitative research and CAQDAS, professors can teach their students in a lower-stakes environment and provide them with valuable hands-on experience so that students may later make better-informed decisions about which research approach to use in their own projects and continued studies or work.

Keywords

ATLAS.ti, Computer-Assisted Qualitative Data Analysis Software, Psychology, Qualitative Research, Teaching, Undergraduate

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“I wish I knew what I know now”: Exploring Psychology Undergraduate Students’ Experiences When Learning About Qualitative Research and CAQDAS

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Learning to conduct qualitative research and use computer-assisted qualitative data analysis software (CAQDAS) can be challenging, which is why it may be more effective to introduce the craft of qualitative research to undergraduate students who have the time and space to learn, even make mistakes, and ultimately build a better understanding for their future studies and careers. There are relatively few published studies sharing insights on teaching qualitative research and CAQDAS to undergraduate students. This descriptive qualitative case study explores students’ experiences in a qualitative research course for undergraduate psychology students, with the aim of discerning how feasible learning both qualitative research and CAQDAS was for these students as well as how they perceived learning about these contents. Data was collected from an online open-ended survey from two consecutive generations of students that completed the course. Students found the course to be a challenging but worthwhile experience: new knowledge and skills were gained that they felt would be useful for their professional and even personal lives. These students recognized that the qualitative research course was an important complement to their predominantly quantitative curriculum. By teaching undergraduate students about qualitative research and CAQDAS, professors can teach their students in a lower-stakes environment and provide them with valuable hands-on experience so that students may later make better-informed decisions about which research approach to use in their own projects and continued studies or work. Keywords: ATLAS.ti, Computer-Assisted Qualitative Data Analysis Software, Psychology, Qualitative Research, Teaching, Undergraduate

Introduction

The typical psychology undergraduate curriculum introduces students to the various areas of the field and equips them with the skills necessary for conducting research. However, the majority of these programs follow the traditionally dominant paradigm of quantitative research, leaving the qualitative paradigm often overlooked in undergraduate courses (Forrester & Koutsopoulou, 2008; Mitchell, Friesen, Friesen, & Rose, 2007; Wiggins, Gordon-Finlayson, Becker, & Sullivan, 2016). Besides being a rather one-sided education, this may result in students misunderstanding the nature of research and perpetuate the misperceptions and criticisms of qualitative research present in much of the academic world (Breuer & Schreier, 2007; Wiggins et al., 2016). Students may hence be graduating without sufficient knowledge to choose and continue developing their careers. Moreover, training undergraduate students to conduct both types of research may raise awareness, encourage rigorous application of both research paradigms, and ultimately enhance the quality of published research in the future (Anaf & Sheppard, 2007). Finally, qualitative research enforces a variety of skills which

are advantageous beyond academia, such as reflexivity, critical thinking, knowing how to ask questions, drawing insights from rich data, and teaching others (Charmaz, 1991; Levitt, Kannan, & Ippolito, 2013; Mitchell et al., 2007).

There is a growing trend towards incorporating qualitative research training in undergraduate psychology programs, following the increasing number of psychology students, a greater emphasis on qualitative research in postgraduate programs, and calls from employers that psychology graduates be equipped with skills pertinent to qualitative methods (Forrester & Koutsopoulou, 2008). Computer-assisted qualitative data analysis software (CAQDAS) is likewise vastly growing; yet, the consolidation of qualitative research and CAQDAS training in undergraduate psychology programs is still in its early phases, with noted inconsistencies in curricula as well as relatively sparse literature on teaching CAQDAS and qualitative research to novices (Paulus & Bennett, 2017; Shaw, Dyson, & Peel, 2008; Silver & Woolf, 2015; Wiggins et al., 2016). While universities in the UK are working to incorporate more education in qualitative research and CAQDAS at the undergraduate level, there is less information regarding other parts of the world. For example, although CAQDAS use is becoming more prevalent in Spain (Valles & Baer, 2005), to our knowledge, there are no current studies published about teaching CAQDAS in an undergraduate university course in Spain (rather, most studies come from the United States, the United Kingdom, or Australia). Although the decision to use CAQDAS is up to each researcher, a variety of possible benefits have been identified, including data management tools supporting complex data triangulation, building connections and relationships in the data, facilitating concurrent analysis of both old and new data, assisting the researcher to develop autonomous inductive insights, more efficient to use in the long-run (once over the learning hurdle), resolving discrepancies in latter stages of analysis, managing secure backups in multiple locations, and the ability to visualize and model data in different ways (Salmona & Kaczynski, 2016).

Paulus, Lester, and Britt (2013) point out that introductory methods courses are the perfect place to socialize new qualitative researchers into a stance that is open to learning about and critically reflecting on technology in qualitative research. The present paper contributes to the dialogue around how technology may enrich qualitative research education by exploring psychology undergraduate students' experiences learning qualitative research and CAQDAS. In particular, we aim to illustrate that teaching both qualitative research and CAQDAS is a worthwhile endeavor, as doing so may be crucial for effectively equipping novice researchers with the necessary skills for meeting the demands of scholarly research today. This study analyzed students' experiences during a semester-long course that was mandatory for all second-year psychology undergraduates, in which they were taught methodological and practical knowledge through a hands-on project, including qualitative research design, data collection (via interviews and open-ended survey), and data analysis using the CAQDAS ATLAS.ti. Data were collected over two consecutive years via an online qualitative survey, with the aim of understanding undergraduate students' perceptions and experiences of learning to conduct qualitative research with CAQDAS. As this research was conducted in an under-researched context (an English-speaking undergraduate university course in Spain), the context-specific findings generated here may offer novel comparison points for findings from research on qualitative research education in other contexts (i.e., undergraduate and postgraduate university courses in English-speaking countries). In other words, the international student body of the present university context offers new perspectives on how students experience learning about qualitative research and CAQDAS, thus providing further evidence of global trends and perceptions towards technology and qualitative research. In presenting the findings here, the authors aim to foster the growth of qualitative research and CAQDAS teaching to psychology undergraduates, thus further contributing to the dialogue for exploring innovative strategies for training the newest generations of researchers.

Teaching Qualitative Research and CAQDAS in Psychology Undergraduate Curricula

Background

Although there are a variety of peer-reviewed studies published regarding teaching qualitative research to undergraduates in disciplines such as nursing (Meherali, Paul, & Profetto-McGrath, 2017; Spiers, Paul, Jennings, & Weaver, 2012) and anthropology (Banerjee, Polley, Makal, & Das, 2017), there are fewer insights regarding teaching qualitative research and CAQDAS, especially in disciplines that are typically dominated by quantitative research education. In this section, we synthesized the information regarding teaching at all university levels, followed by a focus on teaching CAQDAS, and concluding with a description of our psychology undergraduate qualitative research course.

Academic programs that emphasize quantitative approaches could reinforce traditional stereotypes about what type of research is “better” and could leave students ill-equipped to appropriately match study methods to research questions. Qualitative research teachers may thus be faced with the task of showing students that both quantitative and qualitative research methods are valid and necessary approaches to research which have contributed greatly to scientific understanding.

As qualitative research can encompass a broad array of possibilities, creative teaching strategies can help illustrate its diverse applications. Doctoral professors are continuously incorporating innovative tools for teaching qualitative research, such as card games (Mallette & Saldaña, 2018; Waite, 2011) and cell phone applications (Do & Yamagata-Lynch, 2017). Undergraduate professors are likewise employing new teaching strategies, from using poetry (Cousik, 2019) to games, crossword puzzles, and projects based on common multimedia data (such as commercial advertisements) to teach undergraduate students from a variety of disciplines (Spiers et al., 2012). It may be challenging to teach students to think outside the “box” of quantitative research but employing engaging strategies—such as using games or technology—may make it easier for students to approach this new paradigm with a fresh perspective.

Computer-assisted qualitative data analysis software (CAQDAS) provides a classic example of how technology is growing in qualitative research. CAQDAS is challenging enough to teach, with its variety of functions, high demand for computer use, and adaptability to different methodologies (Blank, 2004; Paulus & Bennett, 2017; Roberts, Breen, & Symes, 2013; Silver & Woolf, 2015). Yet, CAQDAS can be a powerful and flexible tool that aids not only qualitative data analyses but also the literature review and overall management of the project. Currently, it seems that CAQDAS courses are most commonly offered in postgraduate curricula (Roberts et al., 2013). However, several problems with teaching students this late in their academic careers have been identified: difficulties transitioning from manual to digital analysis (Gilbert, 2002), students in a single class have varying levels of familiarity with CAQDAS (Carvajal, 2002), and there is the risk of learning CAQDAS for the first time with the final dissertation project. Since CAQDAS is most effectively learned through practice (Blank, 2004; Carvajal, 2002; Flick & Bauer, 2004; Paulus & Bennett, 2017), students may benefit from learning to use this software in a lower-stakes environment rather than making common, but possibly painful, mistakes in their dissertation projects.

There are many materials available for learning how to use CAQDAS instrumentally, but researchers also need to understand how their methodology will guide their use of the software (Johnston, 2006; Roberts et al., 2013). Thus, it is crucial that students are likewise taught how their methodology should inform their use of the software (and not the other way around). Professors that teach CAQDAS conduct their courses in different ways; for example, some teach CAQDAS only in the data analysis part of the course (Mitchell et al., 2007), while

others incorporate use of the software from the beginning to the end of a class research project (Johnston, 2006). We believe that it is best to introduce CAQDAS as soon as possible, because CAQDAS can even facilitate the literature review, so students can begin familiarizing themselves with the software from the very beginning of their project.

Although the discipline of psychology has long been dominated by quantitative methodologies, other areas such as sociology have relatively ample experience working with and teaching qualitative research and CAQDAS (Denzin & Lincoln, 2011). For example, Walsh (2003) taught her undergraduate sociology students about qualitative research and CAQDAS through a combination of discussion and hands-on activities in a university course, and students worked on pursuing their own research questions (including reviewing the literature and gathering data) for about twelve weeks. Walsh (2003) ultimately concluded that it was a positive learning experience, and, in addition to learning new tools to explore data, students gained organizational and technical skills that could also be used beyond qualitative research.

The aim of the present study was to explore these students' experiences: we wanted to investigate how feasible learning qualitative research and CAQDAS in a psychology undergraduate course was for students and, on the other hand, to understand how students perceived the subject. As previous literature is relatively silent regarding teaching qualitative research and CAQDAS to undergraduate psychology students, we sought to understand why novice researchers should learn both qualitative research and CAQDAS and whether or not this may be a worthwhile endeavor for university professors. By introducing qualitative research and CAQDAS at the undergraduate level, students can learn about these in parallel to quantitative research. This more rounded education could be effective for diminishing common misconceptions and the marginalization of qualitative research and CAQDAS more generally. Moreover, all students would be starting the course with essentially the same level of experience. Finally, students would learn how to use this software in a relatively low-stakes environment, as a part of an undergraduate university course, rather than their postgraduate studies or dissertation, and creating this safe learning environment is crucial for students' learning (Levitt et al., 2013; Paulus & Bennett, 2017). This also means that the next time these students conduct a qualitative study, they will already have some experience and an idea of what to expect, thus greatly facilitating their subsequent work. Besides being beneficial for their qualitative research, professors and students alike have repeatedly recognized the further benefits of understanding methodology and developing reflexive and critical thinking skills through qualitative research and CAQDAS use, skills which are transferrable to many areas of life (Mitchell et al., 2007; Salmons & Kaczynski, 2016).

The present qualitative research course was implemented after psychology undergraduate students' demanded training in qualitative research (alongside their quantitative training). To provide some helpful context, we wish to briefly introduce ourselves and our relationship with this course. The main author's first generation of students protested that their undergraduate psychology curriculum had no training on collecting and analyzing qualitative data (and the second author of this paper was actually a student of the main author during her undergraduate studies). The main author of this paper thus spoke with the head of the psychology department and stepped forward to teach an elective course in these students' final year. Following the success of this elective course (which nearly the entire generation signed up for), the university incorporated a mandatory, semester-long course into the curriculum, which the main author of this paper taught for four years, and the course continues to be taught to this day. The second author, after graduating, continued to pursue qualitative research and thus began collaborating with the main author. After seeing how many other students in subsequent courses—internal and external to the university—appreciated learning about this approach to conducting research, we decided that we wanted to share our experience with other

scholars, because we feel that teaching qualitative research and CAQDAS at the undergraduate level is a worthwhile experience.

Overview of the Qualitative Research Course for Undergraduate Psychology Students

The qualitative research course was a mandatory subject that spanned the full (three-month) semester, consisting of 30 sessions that were one hour and a half each. During the sessions, students learned about qualitative research, and each homework assignment was related to completing their qualitative research project. 24 of the 30 sessions were dedicated to the actual practice of carrying out a small qualitative study. In the first year that this course was launched, students completed their study in groups. However, after observing certain difficulties with group work, we decided to have students complete a project individually in the following year.

The overall scope of the course involved introducing the fundamentals of qualitative research (underlying philosophical understanding, differences to quantitative research, and common methods of collecting qualitative data). In the fifth and sixth sessions, the practice of the literature review was introduced, and this was where students already began using the CAQDAS ATLAS.ti: students were taught how to create a project, import documents (articles for their literature review), organize documents into groups, write full references in comment spaces of documents, save relevant segments of information (create “quotations”), associate codes to quotations, write in memos, and associate memos to quotations. To foster reflexive thinking skills, students were also instructed to create a memo that would be their research diary, where they would write what they did in each working session, in addition to their own thoughts, ideas, doubts, and anything else they wanted to note down. In other words, students were encouraged to write about what they were thinking and doing from the very beginning of their project in ATLAS.ti. The literature review thus provided a convenient way to already begin using ATLAS.ti and get familiarized with the different features of the software (namely adding documents, saving segments of data, and associating codes and memos). The literature review was purposefully kept brief (e.g., students were asked to read and analyze five articles each), and following this review, students were asked to construct an initial conceptual framework by creating a network in ATLAS.ti. Following the literature review, students constructed their research questions and data collection instruments: the first generation of students collected data through individual interviews, and the second generation of students collected data through online qualitative surveys. After data was collected (and interviews were transcribed), students analyzed their data in ATLAS.ti by following a foundational model that was suitable for novices (based on [self-identifying citation removed]). Finally, students presented their findings to their participants, and later in-class presentations were held to describe the overall research process and takeaways from conducting a qualitative study.

Methodology

Descriptive Qualitative Case Study

The present study adopted a descriptive case study approach to analyze undergraduate students' experiences in the qualitative research course; in other words, we sought to understand how undergraduate students perceived the experience of learning qualitative research and CAQDAS, and it was important to explore their natural behaviors and reactions in the real-world context of an undergraduate research methods course (Baxter & Jack, 2008). A descriptive case study approach was deemed appropriate because we wished to understand how undergraduate students felt about learning these novel and arguably challenging contents,

especially since much qualitative research training tends to be conducted in post-undergraduate education.

Participants

Eligible participants for the present research included all the students who completed the qualitative research course. Once the qualitative research course was launched as a mandatory course in the undergraduate psychology curriculum of the university (in 2015), we decided to begin collecting data from students to understand how students were perceiving this new course. Data was collected from the subsequent year (in 2016) to continue elaborating our descriptive case study. All undergraduate psychology students completed this course in the first semester of their second year (and the full undergraduate psychology course spanned four years). As this is an (English-speaking) international university located in Spain, students come from a variety of national backgrounds (the university's student body comprises over 100 nationalities), and the grand majority of students enter the university upon completing their high school education, so most students are between 18 and 22 years old. However, specific demographic data was not collected, as this was not relevant for the overall research goal of understanding psychology undergraduate students' experiences in the course.

Data Collection

We chose to collect data via qualitative surveys (consisting of open-ended questions) that were completed online at the end of the course, because this allowed data collection that ensured greater anonymity in the responses. In other words, we wished to avoid incurring greater researcher effects by having students give their opinions in face-to-face formats; rather, the goal was to have students share their honest views regarding the course. More detailed explanations on how the researcher-participant relationships were managed are given below.

Data was collected at the end of the course through an online open-ended survey. Online surveys have been successfully used in previous studies that investigated teaching of CAQDAS to undergraduate psychology students (Roberts et al., 2013). In the present study, students were asked open-ended questions about their learning experiences. As the goal of this study was to describe students' experiences, open-ended questions were deemed essential (as opposed to multiple-choice questions) because this permitted much greater flexibility in capturing students' reflections on how the research project and use of ATLAS.ti did (or did not) help them learn about qualitative research. Students were thus asked to describe which parts of the course they found most useful/interesting, boring/useless, and difficult. They were also asked about how the project influenced their learning about qualitative research, how they used their research diaries, and how learning to use ATLAS.ti impacted their understanding of qualitative research. There was also a final question that asked whether students had any additional comments or suggestions (i.e., a space where students could include anything else that had not been covered in the survey but that they wished to share).

Data was collected from students of the course in 2015 and 2016, and the survey was identical save for minor modifications on the questions about the project, to reflect the different projects each batch of students completed. The survey was all in English, and the undergraduate course was completed in English; however, as the university is located in Spain, there was a considerable number of Spanish-speaking students. As both authors are bilingual in English and Spanish, participants were allowed to respond to the survey in whichever of the two languages they preferred (to facilitate open and elaborated responses). Any responses in Spanish that were ultimately included in this article were translated into English by the authors (and both authors agreed on the translation). In total, 35 students (who completed the

qualitative research course) agreed to participate in the study. Written consent was obtained from each participant, and they were all assured that their responses would remain confidential (through the involvement of the second author and the use of pseudonyms).

Data Analysis

We analyzed the data across three main dimensions that captured the fundamental contents of the course: learning about qualitative methodology, ATLAS.ti, and the practice of carrying out a qualitative study. These dimensions and their corresponding competencies are described in Table 1.

Table 1. Operational definitions of dimensions for teaching ATLAS.ti at the undergraduate level

Dimension	Operational definitions
Qualitative methodology	Basic concepts of research process (research diary, literature review, elaboration of theoretical model, data collection, data analysis, discussion, and conclusions); basic methodological foundations (epistemological and ontological assumptions, research gaps, research questions, state of the art, quantitative versus qualitative foundations, and inductive-deductive strategies, etc.)
ATLAS.ti	Ability to create Hermeneutic Unit (HU), add secondary sources, conduct literature review, add primary sources, analyze primary data, develop and document ideas, and work in groups (all within ATLAS.ti 7 Windows); ability to create codes, quotations, memos, families, semantic links and networks, and simple reports
Qualitative research project	Ability to conduct small-scale qualitative research study using ATLAS.ti; ability to design and carry out open-ended survey and/or semi-structured interview; ability to transcribe, analyze data, discuss results and literature review, and present overall study coherently

The descriptive qualitative data analysis was conducted using the same model that was taught to the students, and data was first analyzed by the second author of the study, who was not directly involved in teaching the course. This was essential for maintaining the anonymity of the participants' responses. Once all participants' responses were imported into ATLAS.ti, the second author inductively coded the responses to capture the specific contents or aspects of the course that students referred to as well as their personal reactions or evaluations (i.e., initial coding; Charmaz, 2006; Corbin, Strauss, & Strauss, 2015; Glaser & Strauss, 2017; Saldaña, 2013). This resulted in 293 descriptive codes, and after a cycle of elaborative coding (Auerbach & Silverstein, 2003), the following 17 categories were developed (listed in order of most to least frequently mentioned): general comments on the course, ATLAS.ti, learning outcomes, difficulties related to the course, useful aspects of the course, interesting parts of the course, comments about keeping a research diary, positive perceptions regarding the course, comments about the group work, boring parts of the course, realizations that students had, suggestions for improvements in the course, how difficulties were overcome, comments about the project, motivating factors, negative perceptions regarding the course, and demotivating factors. Each segment of data was comprehensively coded, so any single data segment could be coded for a variety of the above categories. For example, one participant said:

It influenced the way in which I understand qualitative research as now I know more of a practical approach to research, I understand now that it is a very long process, that includes small but important steps. For example, previously I wasn't aware of the different ways of analyzing qualitative data. Such as the process of prospective, coding and recoding cycle. I think it had a positive influence in how I learned about qualitative research because it was much more interesting to conduct such a practical project, where I felt personally involved rather than a fully theoretical approach.

This was coded with codes about comments about the course, interesting aspects of the course, learning outcomes, positive perceptions of the project, and realizations students had. Thus, the inductive coding cycle was relatively comprehensive with many overlaps and potentially interesting emergent categories, and the main goal was to simply describe what participants were saying. After this inductive analysis cycle (which also included de-identifying the responses), the second author sent the ATLAS.ti project to the first author of this paper (and professor of the course) who likewise examined the data to ensure the consistency of the coding of the overall categories (i.e., focused coding; Charmaz, 2006; Saldaña, 2013). Both researchers hence discussed the overarching categories and their representativeness of the data until mutual agreement was reached. With the categories established, the data was re-examined by both authors to develop deeper understanding of what exactly students were saying about each of these categories (e.g., what comments did they have about the course? Did ATLAS.ti help or hinder their learning of qualitative research? What did they find most boring and most useful?). This final analysis cycle likewise consisted of elaborating the final conceptual frameworks that summarize the main findings regarding each theme. These frameworks were created in ATLAS.ti, and the groundedness and density of each code is likewise included to provide further transparency regarding the analysis behind each code. Groundedness shows how many data segments are associated with each code, and density shows how many links a code has with any other codes in the project (thus, both groundedness and density are generated by the researchers as they code the data and create links among codes). In line with Miles, Huberman, and Saldaña (2014), we believe that visual displays are crucial for making sense of qualitative data, and these resulting frameworks and analyses are presented below.

Ethical Considerations, Trustworthiness, and Rigor of Findings

Approval to carry out this research was gained from the Psychology Department of the university, and each student consented to participating after reading about the purpose of the study (which was to learn about their experiences, as opposed to evaluating their performance). It is also important to consider the dual relationships of professor and student and researcher and participant. Given that the researchers of the present study were also the professor and teaching assistant of the course, data collection only began once the course ended and students' grades were established. A survey was used because this facilitated students' anonymity in submitting their responses; conversely, conducting interviews or observations could have encouraged socially desirable responses. To ensure confidentiality, the role of the second researcher (who was also the teaching assistant during the course) helped attenuate the influence of the main researcher/professor. The second researcher/teaching assistant distributed the surveys, collected the responses, and de-identified the responses (where any names were mentioned in the responses). The second author first analyzed the responses in ATLAS.ti, and only the de-identified version of the project was sent to the first author for further analysis (as outlined above). Rigor and trustworthiness were ensured through the triangulation of both

researchers' analyses of the data, and both researchers discussed the final categories to verify the findings. Despite the steps taken to reassure students that their professor would not know who said what (and that there was no way their grades would be influenced by their participation), it is naturally not possible to completely eliminate possible effects of social desirability. While negative perceptions and reactions were mentioned by multiple participants (and they are presented in the findings below), we do wish to point out to readers the potential influence of social desirability.

On the other hand, the qualitative research course has continued to be taught to undergraduate students in this university to this day, and each cohort of students has consistently had about five students (out of fifteen to twenty students) who choose to complete their final undergraduate thesis project following a qualitative methodology, suggesting that the overall experience of learning to conduct qualitative research and use CAQDAS is beneficial for at least some students. In other words, it was never expected that every student would particularly enjoy conducting research (qualitative or quantitative), but as the goal of the course was to introduce students to this alternative approach to conducting research (to effectively give them a broader array of choices), it is encouraging to see that each generation does have students who decide to pursue qualitative research.

Organization of Findings and Discussion

The findings are organized around students' responses regarding qualitative methodology, the use of ATLAS.ti, and the qualitative research project. The findings regarding each of these sections is further divided by the various sub-themes that emerged through the analysis. We thus discuss how these themes stem from the relevant main dimensions of the course, and, in the discussion section, we reflect on participants' responses and contrast our findings with relevant literature.

Findings

Following the descriptive analysis of the 35 participants' responses, we present our findings regarding the three main dimensions of the course. Overall, we found that students generally found that learning these new contents was challenging and the course was demanding in terms of the time and effort that student had to expend, but they also appreciated gaining many practical skills: students frequently mentioned the value of having learned how to use ATLAS.ti, conducting an in-depth interview, and carrying out a research project from start to finish, especially for their careers as psychologists. The survey did not ask about students' future career plans, so it was particularly noteworthy to see that many students valued learning these skills.

Qualitative Methodology: Learning to Analyze Rich Data

Learning how to ask questions and analyze words were some of the most useful (and interesting) parts of the course from the students' perspectives. Moreover, many students reflected on how their perception towards qualitative research had changed – they realized how scientific or “structured” qualitative research actually can be. In addition to this, they came to appreciate the amount of time and work that goes into conducting qualitative research, and they especially began to value the importance of research reflexivity (as practiced through each student's research diary). The following framework (Figure 1) synthesizes the main components specific to the qualitative methodology part of the course.

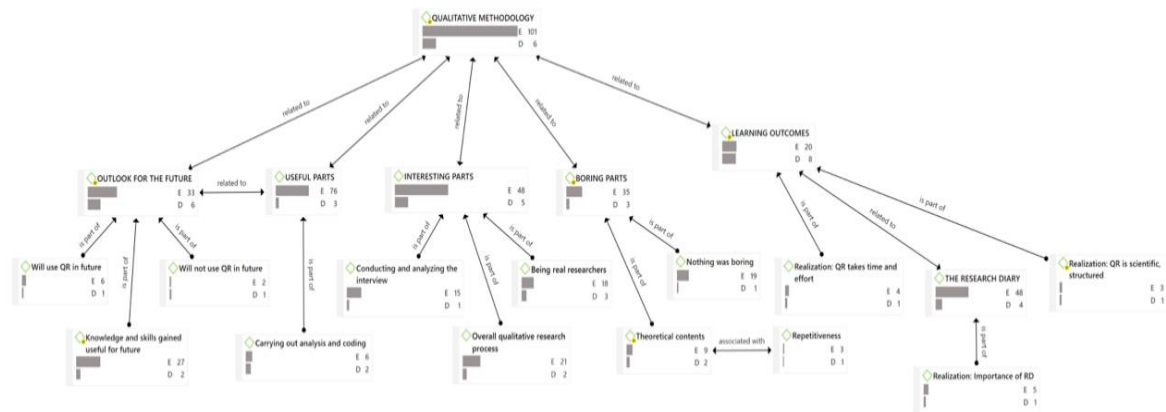


Figure 1. Main findings on students' experiences and perceptions about qualitative methodology
 E: number of data segments associated with each code (groundedness)
 D: number of links each code has with other codes (density)

Appreciating what qualitative research has to offer. In 2015, students generally enjoyed carrying out the qualitative study and learning about this way of conducting research. Many students shared that they initially thought qualitative research was less scientific than quantitative research, but after experiencing it for themselves, they appreciated the utility and importance of analyzing rich data. Claire (from the 2015 class), for example, shared her impressions:

One thing that I was able to learn is how to actually analyze interviews. Before doing this, I was always keen on quantitative methods because for me it seems more scientific. But after doing this, I was able to understand how you can analyze words with importance.

As could have been expected, the most boring parts of the course had to do with completing the reading assignments while, overall, the practical, hands-on parts of the course—such as coding and data analysis—were most enjoyed. For example, Vincent (from the 2015 class) pointed out, “The theoretical framework, putting various words and phrases into specific categories, gave me a sense of categorizing and carrying out findings from words, which was very great” as well as “the part with the interview and the coding and analysis is where things clicked together.” By completing the reading assignments and attending the classes, most students were able to understand the main concepts of qualitative methodology and did not find any part too difficult.

Whereas the 2015 participants' responses talked a lot about for the place of ATLAS.ti within qualitative research, the 2016 students' responses highlighted their appreciation for the place of qualitative research within psychology. For example, Rachel (from the 2016 class) “found it useful how we learnt the difference between quantitative and qualitative and the use of qualitative research in psychology” and Kasia (from the 2016 class) shared, “I think qualitative research is extremely important in today's day and age. As much as quantitative research is, but with qualitative research the researcher plays a role. I like the fact that subjectivity is appreciated in qualitative research.” Indeed, many students valued having this global understanding of qualitative research, because “we never really went into detail and never knew all the things you can work on and analyze,” in the words of Georgina (from the 2016 class).

Coming to grips with researcher reflexivity. When it came to keeping the research diary throughout the work on the project, the majority of students did not write in it consistently. This was either because they did not quite understand what to write or they simply forgot to write in their research diary during their working sessions. When students did write in their research diary, they used it to keep note of the steps they followed each day (especially in relation to using ATLAS.ti and coding their data), to write down their ideas and thoughts, and to give themselves reminders and keep track of their overall progress. Christina (from the 2015 class) explained:

At first I did not really use my research diary, mostly because I didn't realize how important it was. It was only 2 weeks ago that I started using it regularly at every session. It has been really helpful, especially with the cycles of analysis/coding, since I can go back and check how it was explained and how you do it.

Students kept their research diaries as a memo in ATLAS.ti. Several students also mentioned that, although they did not use the research diary very much, they did write many memos to capture their analyses, reflections, and overall understanding during the literature review and data analysis phases of the project. Georgina (from the 2016 class), for example:

I didn't really use much of the research diary in terms of writing what I had done each day. However, I did use the memos when explaining the reason of quoting each code or writing down my reflections after each interview.

Therefore, although the students may not have initially grasped the purpose of memos and the research diary, through the work on the project, the majority of the class came to realize the value of reflexivity and writing throughout the qualitative research process. Interestingly, students of the 2016 class seemed to understand and use the research diary much more. This may be due to the fact that the professor, after the experience of the previous year, made more efforts to explain and encourage the use of the research diary in order to promote reflexivity and critical thinking from each of the students. Elizabeth, for example, said:

I used the research diary to understand what ideas I got in the moment of analyzing my data. It was very useful because I have a bad memory, so I tend to forget some good ideas that I get when doing many tasks. I also realized that my perceptions changed from the first time that I read something and the second, or third time.

Gaining skills for careers in psychology. Across both years, students most commonly spoke of the whole interview process being the most interesting and fun part of the course: designing the interview guide, carrying out the interview, transcribing the recording, and analyzing the participant's own words. Besides it being interesting, many students appreciated getting this real-world experience, as Natalia (from the 2016 class) said, "I finally understand how to carry out a qualitative interview," and students further explained that they learned so much more through this hands-on practice compared to the class lectures or textbook. Perhaps the most notable finding across the students is their changed perception of qualitative research. As Aleksa (from the 2015 class) shared:

I found many parts of the course both useful and interesting. For one, since the type of research done in school and the type of research we had been taught here

at IE last year was only quantitative, this course has definitely opened many possibilities in regards to research we could choose to do in the future. Personally, I have never been a passionate person about doing “research” (as I understood it before) and writing lab reports. However, qualitative research is without a doubt much more interesting to me than any other types of research I have done before. For the future, when I have to conduct research, despite the fact that I know it takes a huge amount of time and commitment, if I have to conduct research I am without a doubt inclined towards qualitative, because I know I have enjoyed this project and this research, much more than other research I've done in the past.

She, and many other students, realized the value of qualitative methodology and its place within psychology. Chelsea (from the 2015 class) commented on how everything she learned will be “very useful... for my future as a psychologist,” and Molly (from the 2015 class) learned the importance of “how critical, skeptical and reflective I have to be at all time.” Natalia (from the 2016 class) likewise felt that the skills she gained in this course would be particularly useful for her professional life, as she wants to work in consulting. Martha (from the 2016 class) even recommended, “Continue teaching this course in the uni, because it is really worthwhile, and we are capable of understanding it although it is very stressful at some points.”

ATLAS.ti: A Demanding but Useful Tool

Learning how to use ATLAS.ti 7 Windows was consistently the most difficult part of the course for students across both years (in 2015 and 2016) – whether it was due to the variety of commands and features that needed to be learned or simply because it is time-consuming to learn a new software, this part of the course was almost unanimously the most challenging or frustrating part. The following framework (Figure 2) synthesizes the main findings specific to the ATLAS.ti component of the course.



Figure 2. Main findings on students’ experiences and perceptions about ATLAS.ti
G: number of data segments associated with each code (groundedness)
E: number of links each code has with other codes (density)

Challenges with learning CAQDAS. Many students from this year mentioned the importance of attending classes and finishing assignments on time, for “missing one of your classes is detrimental to my improvement in the area of qualitative research,” as Molly (from

the 2015 class) reflected; several of the students' testimonies highlight the challenge of keeping up with this relatively dense and demanding course. Moreover, where students struggled the most, this was frequently mentioned in concurrence with a lack of confidence with computers. For example, Sara (from the 2015 class) explained:

At first, I really did find the whole concept of ATLAS.ti difficult. Thus, I went to [the professor] and asked her for help and, luckily, she helped me increase my confidence towards the subject, and I was really thankful for that. I was a bit lost at first and panicked. I think when I work with computers there is always a block and I tell myself I cannot do it. But, after a lot of work I realized that coding and the whole notion of using ATLAS.ti is not so difficult after all.

Thus, Sara was able to overcome her difficulties with the professor's support and by dedicating some time to working with the software. That being said, though, it is also worth noting that most of the students were indeed able to find their way using this new software. Alicia (from the 2015 class), for example, expressed, "Personally I had no problem using the ATLAS.ti software, and many things were self-explanatory, or I was able to discover them on my own." Indeed, the majority of students, by the end of the course, found that no "part was 'too' difficult," as in the words of Elaine (from the 2015 class).

Challenges with accessing CAQDAS. In the second year of the course (2016), students likewise mentioned ATLAS.ti as the most challenging aspect overall, yet their testimonies foreground a different series of difficulties associated to learning a new software: few students mentioned computers themselves as a problem, but rather the logistical obstacles to using ATLAS.ti. When talking about the software, several students, such as Michelle (from the 2016 class), said that, "It was extremely time consuming because we could not download it on our computer and that I believe was the main limitation," because they always had to use the computers on campus to complete their analyses. Besides the availability of the software, students from this year likewise had distinct challenges completing the group work when there was a mix of Windows and Mac users, as ATLAS.ti 7 Windows has limited compatibility with ATLAS.ti 7 Mac. Jennifer (from the 2016 class), for example, found these logistical obstacles to be particularly frustrating, "I struggled quite a lot with the ATLAS.ti program but not because I didn't know how to use it but because I had struggles with the copy bundles when sending them to me due to different softwares." She is specifically referring to transferring and merging everyone's projects (i.e., "copy bundles" in ATLAS.ti terminology) across both Windows and Mac operating systems in the final phases of the course.

Valuing learning a tool of the trade. Despite the coding and analysis part being the most challenging to learn, it was likewise mentioned as one of the most useful things students learned in the course, across both years; this was especially apparent in the 2016 students, as they frequently spoke of the interview process (i.e., conducting and analyzing it) as one of the most interesting and worthwhile aspects they learned. In addition to this, many students found ATLAS.ti particularly useful for staying organized and keeping track of things. An even stronger trend also emerged over the two years of this course: students initially struggled using ATLAS.ti (especially during the literature review), but once it came to analyzing their primary data, many students expressed an increase in interest and confidence with using the software. Marcela (from the 2015 class) summarized:

I feel like it is a very interesting program. At the beginning I was just like... what is this... and started playing a bit with the program. At first I thought

like... for what do I have to do memos? I didn't find it very useful. Especially in the literature review part. All my memos I think were maybe a bit shallow... Like: Oh maybe this is important for the project... So at the beginning I didn't find it very useful, but then in the part of analyzing the interview and the survey I think it was very useful and started to realize that the memos are actually a giant part of my analysis. Now that I am almost done with this process, I feel like it is an amazing tool for analyzing. I would definitely use it in the future for further researches.

As Georgina (from the 2016 class) said, "it was after the interviewing (when we had to code it) that I started appreciating ATLAS.ti," and it was heartening to see that even this relatively short time span of the small-scale qualitative study offered enough space for practice for these undergraduates to grasp this CAQDAS. Many students' testimonies were in line with Anabelle's statement (from the 2016 class) that "once you get familiarized with ATLAS.ti it is really easy to use it."

Finally, despite the steep learning curve, several students felt that learning ATLAS.ti was one of the most useful takeaways from this course, as they planned to likewise use the software in the future, for "writing academic essays in university" (in the case of Michelle, from the 2016 class) as well as for the "dissertation and future research... the use of ATLAS.ti, I have found invaluable" (as mentioned by Elaine, from the 2015 class). Several students looked forward to including this skill on their CVs, and they appreciated learning these contents for their future as a psychologist. As Leonardo (from the 2015 class) pointed out, "I personally liked learning about the software, especially considering that we already learn about a quantitative software in statistics, it's a nice complement, and necessary." Finally, over a year after completing the present data collection, Christina (from the 2015 class) wrote the professor to express her gratitude:

I really wanted to tell you that I could get the research assistant internship because I was only the one candidate who learned ATLAS.ti from a professional so I really want to thank you for teaching that! From now, I will work on medical projects by using ATLAS.ti! I am excited to have a new experience by using what I have learned from you!!

The Qualitative Research Project: Learning by Doing

In 2015, the qualitative research project was completed in groups of 4-5 students, the dynamics of which often affected students' overall experience with the project: when the group worked well, students appreciated having peer support, but when the group did not work well, some students' frustration or dissatisfaction was significantly compounded. Students' feedback regarding the group work ultimately motivated us to implement individual projects in the following year (2016). It was clear that students both learned more and genuinely enjoyed "getting their hands dirty" by carrying out a real qualitative research project, even a small-scale one. The following framework (Figure 3) synthesizes the main components from the qualitative research project part of the course.

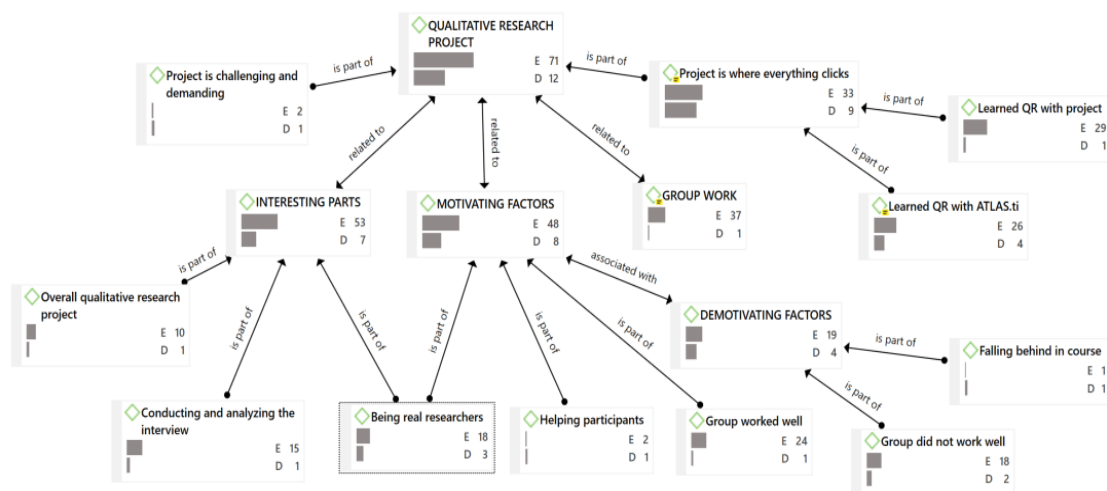


Figure 3. Main findings on students' experiences and perceptions about the qualitative research project
 E: number of data segments associated with each code (groundedness)
 D: number of links each code has with other codes (density)

The craft of qualitative research. Despite the variation in the qualitative research project between the two years, students' responses reflected the same overall trend: the qualitative research project was the most positively evaluated aspect of the course, for students enjoyed being real researchers. Although learning all the new concepts and terminology inherent to qualitative research and the use of ATLAS.ti was one of the most challenging parts of the course, the project allowed students to apply and truly understand the practice of qualitative research. Aleksa (from the 2015 class), emphasized the value of learning by doing:

The leadership project was an amazing way to learn about qualitative research. I think that having had the opportunity to learn about it from this practical and real world project has taught us and given us so much more experience, than just looking at PowerPoints and learning theory every would.

Many students shared Aleksa's point of view, valuing this practical part of the course for the knowledge they gained as well as for the skills they learned which they felt would be useful even beyond the classroom. Marcela (from the 2015 class), for example, made this distinction when she said, "The theoretical part is also very important, but I feel it's priceless to have this kind of experience at such an early stage in my career. I really valued it." In keeping with previous research, Michelle (from the 2016 class) likewise felt that, "I had never fully understood what qualitative research is about until I put my hands on it," and she found this to be "really the best opportunity as future psychologists because it is true we learnt through practice a lot better than just theory." In reflecting on her work during the project, Christina (from the 2015 class) said, "I wish I knew what I know now when we started working on this project, because then I would have been more thorough with my memos and coding." This theme of "wishing I knew what I know now" was prevalent in several responses across both years, whether it was in regard to ATLAS.ti, qualitative data analysis, or even simply how to organize and plan one's time.

Gaining skills and ideas for the future. Several students also pointed out that they now felt prepared to tackle other research projects in the future, such as Maddy (from the 2016 class):

I think [the project] was the thing that cemented my understanding of qualitative research. I truly feel as though, because of the experience we had, that I could be thrown into a qualitative research project and know what to do with it.

Students additionally mentioned that “I feel confident that I could do qualitative research in the near future with no problems” (Elizabeth, from the 2016 class) as well as “it is a good skill to present on my CV” (Claire, from the 2015 class), showing that several students were already thinking about how to apply their knowledge beyond this course. On the other hand, several students clearly felt that they did not wish to engage in qualitative research again. As Otis (from the 2016 class) summarized, “I understand how [qualitative research] functions and what each of the qualitative researchers have to go through, allowing me to know that I don’t want to do anything similar like this again but would allow me to if necessary.” Conversely, there were likewise many students who realized that they very much like qualitative research, such as Alicia (from the 2015 class):

I loved the leadership project because in the end it was very different from what I imagined, reading the book. I feel like it gave me a little glimpse into what a qualitative researcher actually does and whether I could imagine myself in this field in the future. Plus the concept of qualitative research is so different from what we are taught in other courses that it was inherently interesting as a contrast to the most frequently used and accepted methods in psychology.

Discussion and Conclusions

Learning about Qualitative Research

Introducing these undergraduate psychology students to the craft of qualitative research helped raise their awareness of how research can be conducted. These findings further supports previous researchers’ statements that qualitative research is akin to learning a new craft, whereby an “apprentice” follows a “master” and learns by doing (Banerjee et al., 2017; Breuer & Schreier, 2007; Flick & Bauer, 2004; Li & Seale, 2007; Paulus & Bennett, 2017; Shaw et al., 2008). Indeed, this notion of “learning by doing” was present throughout these findings. For example, the importance of keeping a research diary was mostly recognized in the final parts of the course, when students could look back and appreciate the value of writing things down, reflecting and thinking critically, and keeping track of their overall progress. Many students commented that writing in their research diary and memos was of great help, and they came to appreciate the value of writing during qualitative research. Indeed, qualitative analysis essentially *is* writing (Braun & Clarke, 2013), and it is encouraging to see that students got to grasp this through their own memo-writing.

The experience gained through the project was almost unanimously remarked as the most interesting part of the course—students enjoyed being real researchers, which kept them motivated to continue moving forward. In other words, the project was where “everything clicks” and students finally got a grasp on what qualitative research truly looks and feels like. Thanks to this practice, students learned both how to use ATLAS.ti as well as what qualitative research entails. von Unger (2016) taught undergraduate students about research ethics through a hands-on course, and the author pointed out that students learn most by doing and that research ethics have to be taught in tandem with research methods, methodology, and epistemology, since they are all interrelated. The same can be said for teaching qualitative research and CAQDAS, for students need to both technically understand how to use the

software, but they also have to understand research methodology in order to carry out a rigorous study.

Several participants' comments brought up the point that qualitative research is rarely taught in comparison to quantitative methods (in their undergraduate psychology course). Yet, given that many students expressed explicit interest in qualitative research, one may wonder whether there are students in undergraduate psychology programs all around the world who would prefer to work with qualitative research rather than quantitative research, once they learn about both approaches.

While some participants said they had previously thought that quantitative research was more "scientific," after learning how textual data can also be analyzed with rigor, many participants came to appreciate what qualitative research has to offer. In reality, it seems unjustifiable to say that undergraduate students do not learn how to analyze words—after all, this is something we do on a daily basis without even thinking about it—and, moreover, any student conducts a qualitative analysis to a certain degree whenever they carry out a literature review—a necessary part of any research project. Nonetheless, it seems that this "science = numbers" perception is quite prevalent, for many of the students were pleasantly surprised at how structured and empirical qualitative research can be. Waite (2014) drew attention to the status and hierarchies of knowledge and curricular subjects, pointing out how qualitative research disciplines tend to be treated as "the poorer step-children" in university curricula which can pose challenges for teachers. Yet, if qualitative research is not deemed very important, it is less likely that resources will be dedicated to teaching qualitative research. Support from the university is often necessary, because obtaining CAQDAS can be expensive, and more often than not it is also important to have faculty that can teach students to use the software (Forrester & Koutsopoulou, 2008). Thus, the perception that qualitative research is lower in the research hierarchy can negatively impact teaching of qualitative research and CAQDAS to undergraduate students.

Despite the challenges of learning a new research methodology that is particularly demanding on the researcher, the fact that the students gained this new understanding of qualitative methodology is, in our view, perhaps the most valuable outcome from this course. It is of course too presumptuous to say that all the students are now excellent qualitative researchers, but thanks to their hands-on experience, they now know what kind of work they like (and do not like) and can thus continue to pursue their interests.

While several students loved qualitative research and others saw it as simply another part of their studies, overall, these undergraduate psychology students generally appreciated having gained new knowledge and skills that they felt would be useful for their professional and even personal lives. The true learning outcomes occurred at the intersection of the three main components of the course. Qualitative research is most effectively learned by "getting your hands dirty"—students studied the methodological underpinnings of qualitative research from the textbook, but the true "aha" moments came while working on the project.

Learning to Use CAQDAS

The participants' responses suggested that using ATLAS.ti may not only facilitate the research process but, in some cases, it can also improve understanding of methodology. Nonetheless, learning to use ATLAS.ti was also one aspect that students struggled with the most, especially at the beginning of the course; yet, these findings showed that practice and experimentation were fundamental to learning ATLAS.ti, and this can even be achieved on a small scale – including the transition from conducting a literature review to analyzing one's own data. The observed learning outcomes from the data gathered here confirm that students' confidence and understanding of ATLAS.ti grew with time, so that by the end of the course

many of the students' first impressions of the software changed for the better. In addition to this, many of the students referred to ATLAS.ti as a tool for qualitative research, rather than as a software that does the analysis for you—it was heartening to see that this common misperception of CAQDAS was not present in students' reflections on ATLAS.ti. Finally, despite the steep learning curve, several students felt that learning ATLAS.ti was one of the most useful takeaways from this course, as they planned to use it again in the future, in their academic or professional lives.

It is also worth mentioning that many struggles with learning how to use the software were also related to how much jargon there is in ATLAS.ti 7 Windows (e.g., primary documents, families, hermeneutic units, etc.), and learning all this new terminology can be daunting at first. Fortunately, with the release of ATLAS.ti 8 Windows (as of January 2017), this jargon has been greatly reduced, and it is expected that teaching ATLAS.ti in the future will be significantly facilitated by these changes (e.g., it is simply a “project” now rather than a “hermeneutic unit”). In any case, this is not a surprising finding, given that many previous instructors and researchers have likewise noted the common difficulties when beginning to learn and use a CAQDAS (Blank, 2004; Carvajal, 2002; Mitchell, et al., 2007; Walsh, 2003). In further accordance with previous research, students were ultimately able to overcome their difficulties with practice and support from the professor and teaching assistant (Paulus & Bennett, 2017; Silver & Rivers, 2016). Each class was very interactive, so that students had a chance for one-on-one time with the professor, and they could likewise reach the professor via email in between classes. Additional support sessions were also organized each week, for which the teaching assistant would be present in the computer lab so students could come to work on their projects and receive any further, one-on-one support as needed. Indeed, students often expressed their appreciation for these extra support sessions, especially in the cases of those who were not very comfortable with speaking in class.

Students most commonly struggled with the coding and analysis part of using ATLAS.ti, and in some cases these difficulties were compounded either by a student's inherent discomfort with computers or by the time restraints of the course, which sometimes caused more stress and impeded learning. These findings likewise serve as a reminder that, despite undergraduate students today forming part of the “digital native” generation (Paulus & Bennett, 2017), there are still those who struggle with picking up new technologies. Just as with teaching any CAQDAS, the close and prompt support from the instructor(s) is a crucial part of helping students get past these common initial frustrations (Paulus & Bennett, 2017; Silver & Rivers, 2016). In addition to this, the present findings reaffirm the need for greater access to CAQDAS programs outside of the classroom, as has been voiced in previous research (Roberts et al., 2013).

Technical difficulties with sending, sharing, and combining projects were also particularly frustrating. Even when students were learning and using the software well, these inherent data management limitations of the software kept students from achieving their final desired product. Fortunately, with the release of ATLAS.ti 8 Windows, projects can be seamlessly transferred between both Windows and Mac computers, so these technical difficulties are gradually being addressed as software is improving. Moreover, since the conclusion of this study, ATLAS.ti Cloud was released, which is a fully web-based version of the software, thus eliminating barriers to downloading and installing software and facilitating teamwork through live collaboration possibilities. In other words, technology is of course continuing to become more accessible, so hopefully these technical difficulties will only continue to be reduced.

Many students' responses reflected a growing familiarity and ease with using ATLAS.ti: their first experience with the software, the literature review, was notably frustrating and unclear, but by the time they came to analyze their primary data, they were already familiar

with the software's functions and overall enjoyed the process much more. Indeed, ATLAS.ti was purposefully introduced from the very beginning of the qualitative research project, because it was expected that they would initially struggle whilst solidifying their understanding of the software. It is unsurprising that, essentially, all you need is practice in order to learn CAQDAS; what is worth underscoring here, though, is that this first touch with qualitative data analysis and software will be arguably more fruitful if done in a low-stakes environment. As previously mentioned, many CAQDAS users start using the software during their postgraduate dissertations (Roberts et al., 2013), but this relatively high-stakes project does not provide the ideal space and time for experimenting, making mistakes, and learning the software overall. Although learning ATLAS.ti was typically time-consuming, most students found it a worthwhile investment for their futures, which supports findings from other similar studies (Paulus & Bennett, 2017).

The experience across these years of teaching the course showed that with time, support, and the completion of a small-scale project, undergraduates were more than able to learn ATLAS.ti. Ultimately, one of the goals of this course was to teach students how to use one of the most widely used tools of qualitative research, just as psychology undergraduates likewise learn to use SPSS (or similar programs) in quantitative research. The findings from the present study show that students have effectively added this tool to their arsenal of resources as young psychologists, and it is now in their hands to decide how and in which direction to continue pursuing their careers.

Gaining Skills that Could Go Beyond the Classroom

Upon completion of the project, many students spoke of their desire to continue conducting qualitative research, using ATLAS.ti, or applying the skills gained in this course in their studies or careers. Since the first round of data was collected for this study, the students have entered their final year of university and have therefore begun working on their undergraduate thesis projects. Perhaps the most telling result of this course was the fact that nearly one third of the students decided to conduct a qualitative study for their thesis project—now that the students have a fuller understanding of what research in psychology has to offer, they have a wider range of possibilities for choosing and developing their careers.

Many participants expressed appreciation for learning this way of doing research in psychology, both for their studies as well as their professional lives. Although the undergraduate psychology program is predominantly quantitative, these students appreciated learning about this complementary approach to psychological research as well as developing their own critical thinking skills. These findings further support the integration of a qualitative research course into undergraduate psychology curricula, as students will take the most from this topic if they get the chance to actually conduct a qualitative study; merely introducing qualitative research in a general research methods course is not sufficient (Flick & Bauer, 2004). Indeed, this low-stakes environment is ideal for learning and practicing qualitative research for the first time, as students have ample space to work, make mistakes, and learn. It is to be expected that the first time completing a qualitative study would be difficult and prone to errors, but oftentimes these things are best learned through one's own experience,

Finally, and perhaps the most valuable learning outcome from the project, students came to realize whether they would continue to pursue qualitative research or not. They now have an idea of what this research paradigm entails: several loved it, while others had no wish to ever do qualitative research again. We believe this is a very important insight for any undergraduate student: by knowing about quantitative, qualitative, or mixed approaches to research, researchers can effectively choose their academic and professional development

accordingly. Certainly, it is better to realize this as early as possible, rather than after having begun the doctoral dissertation, for example.

For anyone interested in teaching qualitative research to psychology undergraduate students, it is strongly recommended to have students complete a qualitative research project. In the present course, learning ATLAS.ti was greatly facilitated by introducing the software early on: students will expectedly struggle the first time they see the software—in this case, when conducting the literature review—but already by the second time they work with the software—when analyzing their primary data—many doubts and struggles are already significantly dispelled. In addition to this, students genuinely enjoyed collecting their own primary data, especially with interviews, and this was a very strong motivating factor which stayed with students throughout the course. On the other hand, while working in groups may make the project easier to handle, group work can also be a strongly demotivating factor when the group does not work well. Therefore, it is important to carefully manage students' group work, for negative feelings can quickly and easily spread; it may even be worthwhile to assign individual projects. One of the most important tasks of the professor is to foster students' confidence to help them complete the project, for which it is crucial to provide prompt support, revise certain contents, and distribute the workload as evenly as possible across the course. In other words, the crux of teaching qualitative research effectively lies in balancing the teaching of theoretical contents while allowing plenty of space for practice.

Limitations and Suggestions for Further Research

A very pertinent limitation to consider is the fact that the first author of this study was also the professor of the class. While steps were taken to mitigate the biasing influence of this possible dual relationship with the students-participants, it is not possible to completely eliminate concerns that students' responses were somehow influenced by their awareness of the fact that their professor would be analyzing their responses for the purpose of this study. Although data was collected only after completion of the course, responses were collected and de-identified by the second author of this study, and participants were informed that the goal of the research was to understand their perceptions from this course to describe the undergraduate learning experience (and not evaluate their performance *per se*), it is possible that these findings are biased towards presenting students' experiences in a positive light. We explicitly asked about which parts of the course were perceived as boring or useless to try and encourage students to reflect on negative aspects, as well, but future research could also have students rate how much they liked or disliked different parts of the course to gain perhaps more nuanced insights into exactly how much students perceived the course to be positive or negative. In addition to this, we certainly suggest future research to fully separate the roles of the professor and the researcher (i.e., to study another professor's course, and then perhaps confer with the professor in later stages of the analysis to verify findings).

While there are relatively more studies examining the experience of teaching qualitative research and CAQDAS to undergraduate students in disciplines such as nursing and sociology (where qualitative approaches to conducting research may be more common), the present study shares insights from a psychology undergraduate program. These findings thus shed some light on how students that are in programs which may tend to focus on quantitative methods perceive the experience of learning qualitative research. Although claims of generalizability are inherently limited in qualitative research, we believe these findings may be transferable to other disciplines that may likewise tend to be more focused on quantitative research methods, such as programs in business or technology. In addition to this, professors of undergraduate courses who teach students who have not had previous tertiary education may also be able to apply these practices, as the present course aimed to introduce students to collecting and analyzing

qualitative data by providing extensive guidance while acknowledging that students may struggle and make mistakes. In other words, this learning experience is markedly different to university courses that encourage students to conduct research in a more independent manner and possibly publish their findings. Finally, this course also emphasized teaching students to use a CAQDAS (in addition to learning about qualitative methodology), so professors who are also aiming to teach qualitative research in tandem with a CAQDAS may be able to benefit from the present study. Effective CAQDAS use necessitates some understanding of qualitative methodology, as well, but some university programs may include individual courses on methodology and applications of research software. However, for professors who find themselves in programs where students are not taught these contents in other courses, we hope they find the present study to be helpful for gleaned some insights on how both qualitative methodology and CAQDAS can be introduced to students in a single course.

The descriptive nature of this study may serve as a springboard for further research. For example, future research could collect more detailed data on the individual profiles of students to better understand how diverse students perceive learning about qualitative research and CAQDAS. The present study did not distinguish between students who sought research-based versus practice-based careers, and university students, even in undergraduate programs, may still differ in how much research training they had previously received. Thus, if students had previously been introduced to qualitative research and/or CAQDAS, there may be expected differences in their learning experiences. On the other hand, there is a lot of research on this topic that comes from English-speaking countries, and our findings (from an English-speaking university program in a Spanish-speaking country) largely corroborate previous work. However, it would certainly be worthwhile to examine learning experiences in non-English-speaking courses to see if there are any meaningful differences (such as universities in Latin America, Africa, or Asia). Finally, it would be particularly helpful to gather more long-term insights by collecting further longitudinal data. Future studies could provide important contributions by following undergraduate students through their studies and careers to more carefully examine exactly how learning about qualitative research and CAQDAS early on may influence their development as researchers and professionals (and quantitative studies may also be helpful for shedding further light on how undergraduate students' outcomes may be shaped).

Teaching qualitative research to psychology undergraduate students is relatively novel and, given the noted gap in guidance on teaching this topic, professors all around the world are working their way through teaching this kind of course and figuring out how to make this as fruitful as possible for everyone involved. The findings from the present study have shown that this is a worthwhile endeavor, from which students gained new skills that are beneficial beyond just this class. If undergraduate psychology programs aim to equip students with the necessary foundations from which they may continue developing their careers, then it is essential that these students may likewise count on skills pertinent to qualitative data analysis in their arsenal of resources for understanding human behavior. We therefore encourage more universities to incorporate qualitative research courses into their undergraduate programs, as it is a rich topic with many fruits to bear, from teaching important and transferable skills to discovering budding qualitative researchers.

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