Little research has been undertaken on conducting literature reviews, such as systematic reviews, using qualitative software such as ATLAS.ti. Conversely, much research has been undertaken on how to conduct systematic reviews in terms of the practical steps required (Grant & Booth, 2009). This editorial introduces the use of computer-assisted qualitative data analysis software, ATLAS.ti, to conducting scoping reviews as one of the many approaches to systematic reviews. Although not many scholars have reported on the possibilities of using such software for analyzing theoretical work, a few scholars such as Paulus et al. (2014), Munirah Mohamad (2017), Smit (2005, 2018), and Wright (2014) have written about using ATLAS.ti for the literature review.

The review of literature is arguably the most utilized form of qualitative research, and the value of qualitative data analysis (QDA) (Onwuegbuzie et al., 2012) as tools for this task has been acknowledged within the methodological literature and has been promoted by program developers. Generally speaking, literature reviews tend to be conducted manually, and some researchers have found, for example, bibliographic management tools, such as Endnote, Mendeley, Zotero, and RefWorks, quite useful in supporting the crafting of a literature review. More specifically, bibliographic management tools differ from qualitative data analysis software in literature work. While bibliographic management tools assist in keeping track of and categorizing the sources used, qualitative data analysis software assists in the coding and theming of the sources, which can be extrapolated as data to be used in the writing of the reviews. Thus, there is a need to address how qualitative data analysis software can be effectively leveraged to assist researcher in undertaking different reviews.

What Are Scoping Reviews?

Many terms have been used when referring to reviews, including critical reviews, literature reviews, mapping reviews, meta-analysis, mixed studies reviews, overviews, qualitative systematic reviews, qualitative synthesis, rapid reviews, scoping reviews, state of the art reviews, systematized reviews and umbrella reviews (Grant & Booth, 2009). To problematize this typology further, scoping reviews are also labeled as systematic scoping reviews, scoping reports, the scope of the evidence, rapid scoping review, structured literature review, scoping project, and scoping meta-review (Booth et al., 2016). Booth et al. (2016) report that a scoping review “is characterized as a broad-brush approach to finding the most notable studies in the field, with minimal attempts to evaluate them for quality, and a rudimentary attempt at synthesis” (p. 23). They define a scoping review as “a type of review that has as its primary objective the identification of the size and quality of research in a topic area to inform the subsequent conduct of a review” (Booth et al., 2016, p. 314). According to Grant and Booth (2009), scoping reviews are initial assessments of the potential size and scope of available research literature, which aim to identify the nature and extent of research evidence. Scoping reviews are often undertaken when a body of literature has not yet been comprehensively reviewed. Put differently, a scoping review or a “scoping study” is a knowledge synthesis that focusses on an exploratory research question intended to map key concepts, types of evidence and identify gaps in research. The review is usually related to a precisely defined area or field to synthesize existing knowledge. Sometimes, scoping reviews are a first step in conducting a Systematic Review.
The original framework for scoping reviews was proposed by Arksey and O’Malley (2005) and has remained influential in the conduct of such reviews. Their framework has been further developed by the work of Levac et al. (2010), who provide more explicit detail regarding what occurs at each stage of the review process. This enhancement increases both the clarity and rigor of the review process. Both these frameworks have been drawn on in the development of the Joanna Briggs Institute approach to conducting scoping reviews (Munn et al., 2018). It is beyond the scope of this editorial to elaborate on the methodological framework. Instead, we offer a brief overview. Like any systematic review, scoping reviews also require comprehensive and structured literature searches to capture relevant information on the research topic under investigation. This is firstly done by crafting an appropriate research question and thereby identifying relevant and related studies from various databases that speak to this question. Next, the researcher decides which studies are selected for the review based on inclusion and exclusion criteria. The data are charted, also referred to as the data extraction process. After that, data are collated, summarized and reported on, and synthesized according to the PRISMA-ScR guidelines (Sucharew & Macaluso, 2019).

How Can ATLAS.ti Help?

Conducting a scoping review involves understanding the current state of the field to join the scholarly conversation (Onwuegbuzie et al., 2012; Paulus et al., 2014). Onwuegbuzie et al. (2012) have demonstrated how qualitative data analysis approaches can be used to analyze and synthesize information extracted from a literature review. These approaches include applying constant comparison analysis, domain analysis, taxonomic analysis, keywords-in-context (KWIC), classical content analysis, and theme analysis. Onwuegbuzie and Weinbaum (2017) have proposed a framework for qualitative data analysis techniques to analyze and to interpret review sources. They call this framework “qualitative comparative analysis-based research synthesis” (p. 362). Whether the study is qualitative or quantitative or both, literature needs to be understood to situate scholarly ideas in the broader context of the research domain or discipline.

The motivation for using computer-assisted qualitative data analysis software (CAQDAS) such as ATLAS.ti in conducting scoping reviews is relatively new. The use of ATLAS.ti can assist the researcher in keeping track of search terms, keywords and databases sources, journals, scholars, and management systems. Moreover, the scoping review can be built into a project in ATLAS.ti, with the functionality to add documents and articles from any databases at any given time. The researcher can create an analysis framework with the key question in mind and then code specific sections of the articles, which allows a smooth and referenced way when writing up the review. Short memos can be added to the project to keep track of the development of this review. Key ideas can be organized and captured as well as reflections on specific paragraphs or ideas. ATLAS.ti can also be used to import articles directly from reference managers, such as Mendeley, Endnote, Zotero, and RefWorks, to support the literature search and literature review. When importing documents from a reference manager, the researcher can use ATLAS.ti to analyze those articles previously identified as valuable for the scoping review. Put differently, the reference manager deals with bibliographic data, whereas ATLAS.ti focuses on the analysis and meaning-making of the content of the articles.

Coding, Hyperlinking and Analyzing Articles

Onwuegbuzie et al. (2016) offer a helpful “typology for coding and analyzing information extracted from the literature based on Saldaña’s coding methods” (p. 130). The data, identified in the articles, are coded, using a variety of coding strategies, as discussed by Saldaña (2016). Coding the articles for the scoping review involves highlighting texts (quotations) and assigning codes that act as collecting devices, linking together various quotations that share a common feature. However, once identified, these codes also can be used to search and retrieve information about the articles that the researcher has selected (Wright, 2014). The search and code functionality in ATLAS.ti facilitates various text searches within an article or across more than one article and assigns preselected codes for matching text selections. The codes can be grouped or categorized for a thematic presentation of the scoping review. ATLAS.ti can assist in finding quotations that are related to a specific code, which the researcher would like to use in writing up the scoping review. Also, hyperlinking quotations allows for building possible arguments across articles.

Furthermore, by means of grouping articles in one ATLAS.ti project, quick searches of keywords can be undertaken which strengthen claims of why the resources are appropriate. Useful functionalities in ATLAS.ti are word counts and word clouds (similar to Wordle; www.wordle.net; see Bernard et al., 2017, p. 462), which provide an overview of word frequencies in journal articles before deciding whether materials should be added to the scoping review. Word counts also offer an overview of the most often-used concepts or keywords in a particular article or document. This functionality facilitates easy access to understanding the literature at a glance of the words used in a specific piece of text. This process is particularly helpful when deciding which articles to select and which ones to deselect. The word cloud in ATLAS.ti assists with the choosing of research articles. Once the word cloud has been created, the frequency of words can be searched for in context using the search and code function. This search is similar to searching for keywords in context KWIC (Leech & Onwuegbuzie, 2011), and such an in-depth screening should be done by two or more reviewers.

Once the researchers have decided on a range of articles for review, by carefully revisiting the research question, writing up a protocol for the scoping review and employing the eligibility criteria, articles can be analyzed, conclusions can be drawn, and findings can be reported. ATLAS.ti can be utilized for
coding articles, a process similar to qualitative coding, categorizing the code, through creating code groups. The choice of codings can be informed by the work of Saldanha (2016), as researchers decide on the type of codes, such as descriptive, process, or in vivo codes for example. Through extracting and charting (recording/mapping), the data gap can be identified.

In conclusion, computers play an essential role in research, considering quantitative and qualitative software that has been in use for decades. Only recently have researchers considered software for literature reviews. In future, researchers may also adopt software for scoping and systematic reviews, appropriating qualitative data analysis skills to enhance their theoretical understandings of academic texts.

References
Arksey, H., & O’Malley, L. (2005). Scoping studies: Towards a methodological framework. International Journal of Social Research Methodology, 8, 19–32.

Bernard, H. R., Wutich, A., & Ryan, G. W. (2017). Analyzing qualitative data. Systematic approaches (2nd ed.). Sage.

Booth, A., Sutton, A., & Papaioannou, D. (2016). Systematic approaches to a successful literature review. Sage.

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. Health Information and Libraries Journal, 26, 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Leech, N. L., & Onwuegbuzie, A. J. (2011). Beyond constant comparison data analysis: Using NVivo. School Psychology Quarterly, 26, 70–84. https://doi.org/10.1037/a0022711

Levac, D., Colquhoun, H., & O’Brien, K. K. (2010). Scoping studies: Advancing the methodology. Implementation Science, 5(69), 1–9.

Munirah Mohamad, A. (2017). Using ATLAS.ti 8 windows in literature reviews. http://atlasti.com/2017/02/09/lit-reviews/

Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Medical Research Methodology, 18, 1–7.

Onwuegbuzie, A. J., Frels, R. K., & Hwang, E. (2016). Mapping Saldanha’s coding methods onto the literature review process. Journal of Educational Issues, 2, 130–149. https://doi.org/10.5296/jei.v2i1.8931

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2012). Qualitative analysis techniques for the review of the literature. The Qualitative Report, 17(Art. 56), 1–28. http://www.nova.edu/ssss/QR/QR17/onwuegbuzie.pdf

Onwuegbuzie, A. J., & Weinbaum, R. (2017). A framework for using qualitative comparative analysis for the review of the literature. The Qualitative Report, 22, 359–372. http://nsuworks.nova.edu/tqr/vol22/iss2/1

Paulus, T. M., Lester, J. N., & Dempster, P. G. (2014). Digital tools for qualitative research. Sage.

Saldanha, J. (2016). The coding manual for qualitative researchers (3rd ed.). Sage.

Smit, B. (2005). Computer-assisted qualitative data software: Friend or foe. South African Computer Journal, 35, 107–111.

Smit, B. (2018). How can computer software add value to qualitative data analysis? A case for ATLAS.ti™. In K. G. Tomaselli (Ed.), Making sense of research. Van Schaik.

Sucharew, H., & Macaluso, M. (2019). Methods for research evidence synthesis: The scoping research approach. Journal of Hospital Medicine, 14, 416–418.

Wright, S. (2014). Literature reviews on the move: Using the ATLAS.ti APP to support and enhance your literature reviews. http://atlasti.com/2014/06/12/1722/