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Teaching social science research methods in an online setting: pointers from a literature review

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ABSTRACT: Social science research methods are being increasingly taught in an online setting. The COVID-19 pandemic has been a major driver of this trend recently. Although there has been extensive research on online teaching and learning in general, very few studies focus on how this needs to be done specifically in social science research methods (SSRM). This literature review summarizes the most current research evidence on SSRM teaching in an online setting. Such information can facilitate setting up future online teaching and learning activities regarding social science research methods. In addition, the article discusses how this knowledge can be transferred to a practical SSRM online teaching and learning tool (a toolbox in the Navigating Social Worlds project).
KEYWORDS: social science research methods, social inquiry, online teaching, online learning, toolbox

INTRODUCTION

The COVID-19 pandemic forced an unexpected change in teaching and learning in general. More specifically, schools, including higher education institutions, needed to adapt very quickly to a 'new normal' and adapt to teaching in an online environment using online resources (see e.g. Gudmundsdottir & Hathaway 2020; Kaden 2020). The teaching and learning of social science research methods (SSRM) also moved towards web-based solutions. Thus, an international team of scholars was

inspired to create a modern tool for teaching social research with the use of digital resources. The idea was supported by the European Union who directed funding on projects improving digital education.

During the pandemic, an innovative Navigating Social Worlds toolbox specifically about social inquiry was developed (see www.socialworlds.eu). This online educational toolbox contains 17 teaching modules grouped into four thematic categories: introduction to social research; designing the research process; methods of collecting and interpreting research data; and presenting the results of scientific research. The modules were collectively developed by researchers from five universities in Central and Eastern Europe: SGH Warsaw School of Economics (Poland), Babeș and Bolyai University (Romania), Public Policy Management Institute (Lithuania), University of Latvia (Latvia), and University of Tartu (Estonia). This comprehensive collection of systematised materials is freely available to all those teaching or interested in learning about social inquiry. The online toolbox is available in English, Polish, Romanian, Hungarian, Latvian and Estonian languages.

This article aims to summarise evidence on the effective teaching of social science research methods (SSRM) in an online setting. Since the best practices experienced in the last few years have left a lasting mark on the field of education, this literature review is also relevant in post-COVID times. Such background information can facilitate setting up future online teaching and learning activities regarding social science research methods. More specifically, the authors set out to address the following research questions:

(i) What makes SSRM teaching challenging?
(ii) What factors contribute to effective SSRM teaching?
(iii) What aspects need to be taken into consideration in teaching SSRM in an online setting?

METHOD

Based on the aim and the research questions, an academic literature review was carried out in spring 2022. The search terms ‘teaching social science research methods online’ and ‘teaching social inquiry online’ were used to locate academic studies in major academic databases, such as ERIC, EBSCO and Web of Science; Google Scholar was also used to find relevant sources. The articles retrieved with these searches were scanned for relevant sources to locate additional literature. The resulting articles were analysed thematically to answer the research questions. The following will summarize the main results.

FINDINGS

What makes SSRM teaching challenging?

The research on teaching SSRM devotes a considerable amount of space to why, in general, this particular task is challenging. This is an important discussion as it has implications on what makes teaching effective. The authors analysing SSRM teaching

very often point out that teachers encounter difficulties in teaching due to **the nature of the students** enrolled in these courses. Early´s (2014) synthesis of the literature on research methods education found that students participating in introductory research methods courses:

(i) fail to see the relevance of the course;
(ii) are anxious or nervous about the course;
(iii) are uninterested and unmotivated;
(iv) enter the course with poor attitudes towards research;
(v) have misconceptions about research.

Early (2014) also admits based on the literature synthesis that the reasons behind these student qualities are largely unknown. MacInnes (2012, cited though Metzler et al.) adds that students come to the courses with very different academic and professional backgrounds which again means that their prior knowledge of the taught concepts, terminology, skills, etc. varies hugely.

Next, the **nature of the SSRM teaching** itself is very demanding. It has been identified that teaching SSRM is a challenging task as it "demands a combination of theoretical understanding, procedural knowledge and mastery of a range of practical skills" (Kilburn 2014: 191). Kilburn et al. (2014) also underscore the importance of facilitating student understanding on the epistemological foundations of various research methods, which again presents a challenge to teachers. Moreover, the organisation and structure of the methods course requires multiple complex decisions by course authors (Metzler et al.) to make the course-work suitable for a diverse group of learners.

Additionally, it has been claimed that SSRM **teaching staff´s pedagogical competence** might not always be at the required level**.** Nind (2020) claims that SSRM teachers tend to be competent at methodologies but lack teacher training. Furthermore, Wagner et al. (2011) point out that SSRM teachers are not appointed to teach these classes based on their respective attitude but that other considerations might be in play. A study researching the professional identity of higher education research methods teachers outlined that the academic staff providing the courses are most often experts in their research fields (biology, physics, etc.) or identify themselves as researchers in general (Daniel 2018). Considerably fewer teachers claim to be research methodologists. Daniel (2018) highlights that a large part of the teaching staff of methods courses has not been appointed to these classes because of their expertise, but rather due to their availability. This in turn creates a false assumption that anybody with a postgraduate degree is able to teach methods courses (Daniel 2018).

Finally, the **online learning environment** that has become the everyday reality in teaching and learning over the course of the pandemic might exacerbate the above-mentioned challenges (Collins 2018). Managing student diversity or engagement could be even more difficult to handle in a digital learning space. Technological aspects (access to software or hardware), functioning of communication channels (synchronous vs asynchronous) and time zone issues might interfere with the successful provision of the course (Collins 2018).

What factors contribute to effective SSRM teaching?

Wagner et al. (2011) have outlined that teaching SSRM seems to be lacking a common pedagogical culture as the scientific literature tends to be very scattered around specific topics or issues without a comprehensive academic debate. It has also been noted that there are very few systematic discussions and, more importantly, SSRM teachers disregard pedagogical questions in their academic research and writing (Wagner et al. 2011). The lack of research into teaching SSRM has created a situation where the teaching staff of research methods is "largely unsupported by research in their pedagogic decision-making and practice" (Nind & Lewthwaite 2019: 2). Nind and Lewthwaite (2019) made an important contribution to this debate by proposing a conceptual-empirical typology of SSRM pedagogy. A large-scale in-depth study of more than 100 methods teachers (and their students) from the UK and internationally enabled them to gain insight into SSRM teaching practice. In their typology, Nind and Lewthwaite (2019) identified seven approaches to SSRM pedagogy (general theory; values and principles related to teaching) that are each reflected in particular teaching strategies (goals); tactics (procedures); and tasks (what learners are required to do) (see Table 1 below). Without being mutually exclusive, the typology highlights how SSRM is being taught and thus could be used as a good practice example by other teachers of SSRM.

Moreover, Nind (2020), in researching experienced SSRM teachers, sought to reveal their pedagogical content knowledge (PCK) in teaching research methods to higher education students. In her results, she identified distinctive PCK in research methods teaching as well as domain specific PCK (different for qualitative vs quantitative methods). She outlined the importance of using data in teaching, calling this practice "data as the pedagogic hook". Teachers experienced in SSRM plan which data to use for which purposes when teaching methods. Nind also demonstrates how the "use of relevant, authentic data was best for countering student anxiety and provoking interest" (Nind 2020: 194).

In teaching quantitative methods, expert and experienced teachers were seen to focus on translating technical language into non-technical or visual language. Exercises were employed to enable the students to work through their data and build competence gradually. Individual data exploration was complemented with direct instruction; tasks became more complex as students' competence improved (Nind 2020).

In teaching qualitative methods, the teachers focused on experiential learning so that students could really get a feel for the data; sometimes even an embodiment of the data was used. Deep engagement with data was coupled with analysing how the researcher's own standpoints and roles affect data interpretation and analysis. Facilitation of student reflexivity was often underscored in learning. Experienced teachers described how they intended to lead students to find their own understanding of the data rather than structure the data analysis process very rigorously (Nind 2020).

Approach	Strategy	Tactics	Tasks
Student-centred Putting the student at the heart of pedagogic decisions	Teachers start with where the learners are comfortable and motivated, using themes that connect with the group Teachers show relevance of data and methods to students' professions/disciplines	Teachers pick up on anything in class that indicates what is meaningful to students personally Build a common vocabulary Use expertise in the room	Students work on their own data Students critique papers in their own discipline
Active learning Valuing learning by doing and application of knowledge	Alternate lecture and exercises so students apply what they hear and learn by doing Work through the statistical knowledge and the software simultaneously	Teachers use learning glitches to reinforce key concepts Teachers often choose their own data for exercises so they can be responsive to queries about it	Students work hands on with any data as long as they can 'have a play' and gain 'flying time'
Experiential *approach to teaching qualitative methods* Valuing the power of authentic experience	Require students enter the field And attend to the sensory	Teachers exploit opportunities for reflexivity	Students embody data by reading it aloud
Problem-based learning *approach* Valuing the motivational benefits and cognitive process of approaching tangible research problems	Require students to respond to analysis of research needs by devising projects or action to solve them	Teachers provide support as needed: time for mapping the challenge, collaborating peers, an audience for ideas, tools and materials	Students work collaboratively and intensively on the problem (in parts and holistically) and present their solution
Standpoint-led *approach to teaching qualitative methods* Valuing reflexivity and critical engagement	Bring teachers' and students' standpoints to the foreground for examination	Teachers encourage dialogue and model reflexivity	Students reflect upon, articulate, share and defend standpoints
Visual *approach to teaching statistics* Valuing the power of the visual, putting it up front	Teachers use visual scaffolds to reduce the cognitive load	Students see data-related things quicker	Students work with visual metaphors and visual software
Verbal *approach to teaching statistics* Cohering premise that learning stats is like learning a foreign language	Teachers make the concepts understandable and backfill technical skills later	Teachers translate between statistical and non-technical terms	Students develop glossaries

Table 1. Direct excerpt from Nind & Lewthwaite (2019): typology of teaching research methods

Kilburn et al. (2014), in reviewing literature on SSRM teaching, have identified that the teaching approaches applied have three pedagogical goals: a) making the research process visible by actively engaging students; b) facilitating learning through experience; c) encouraging critical reflection. These goals facilitate student-centred teaching and learning.

What aspects need to be taken into consideration in teaching SSRM in an online setting?

Before delving into the peculiarities of teaching SSRM online, it is important to take note of what is known about education provision in an online setting in general. The use of technology in teaching allows participants to choose a suitable time and place for learning (Campell et al., 2008; Hisle-Gorman, & Zuravin, 2006), to review the course content again and to better control their actions (Dumitrica & Jarmula, 2022). Lecturers can use various online solutions for study materials, assignments, glossaries and posting questions and links to additional materials (Lie & Cano, 2001). Web-based learning allows for continuous discussions through forums, chat, boards or e-mail (Ni, 2013). In addition, the behaviour of the learners and the tutor can be monitored in the online course (Campbell et al., 2008). In more detail, collecting information on student activities and activeness in the course allows us to evaluate the effectiveness of the course and help to develop it (Epling et al., 2003).

Martin et al. (2022), using the Community of Inquiry (CoI) framework, looked at the components of teaching presence (e.g. contacting the teacher or teaching assistant directly, monitoring and managing purposeful collaboration and reflection), cognitive presence (e.g. taking notes, reading/posting in forums, readings, video resources and assignment by lecturers, synchronous communication among peers but also among instructor and students) and social presence (e.g. making friends in the forum, joining social media groups, real-time chat among group members) and how these relate to actual learning, perceived learning and satisfaction of students in an online learning environment. Their meta-analysis identified very few studies (19) that evaluated the relationship between CoI elements and learning outcomes. More specifically, the CoI elements had only small to medium effects on actual learning (a publication bias was also identified here), while medium to large effects were found in perceived learning and student satisfaction (Martin et al. 2022). The results provide useful guidance for SSRM teaching in (partially) online environments.

Research methods can be taught in a web-based context, which could make the learning process more versatile and flexible. Despite the rapid spread of web-based learning, there are few online courses of research methods (Lim, Dannels, & Watkins, 2008). There is also little research on the web-based learning of research methods that would help find successful ways of teaching and learning qualitative methodology (Dumitrica & Jarmula, 2022) or highlight the benefits and challenges (Lim, Dannels, & Watkins, 2008) and effectiveness (Hisle-Gorman & Zuravin, 2006; Ni, 2013) of using a web-based course on research methods. Since there are few studies on the teaching of research methods in social sciences online, the results of other fields will also be presented below for a better overview (e.g. nursing, media and communication).

Previous studies have indicated varied findings comparing the results of learning research methods in face-to-face and web-based environments. Campell et al. (2008) found that students who participated in online discussion had higher grades than students who participated in a face-to-face seminar. However, Hisle-Gorman & Zuravin (2006) pointed out differently that students' learning results in the lecture and the lecture with online support were significantly better than the students' who only

participated in the online course. In addition, there are also studies where no significant differences have been found in the distribution of students' grades (Ni, 2013) and knowledge growth (Holmes & Reid, 2017) when comparing online and face-to-face learning of research methods.

It has been concluded that several factors may influence the effectiveness of the web-based learning of research methods. For example, learners' personal preferences and characteristics, or prior knowledge may affect how comfortable and supported they feel in the web-based environment while learning research methods (Lim, Dannels, & Watkins, 2008). Furthermore, the experience of online learning can be related to the course or speciality (Ni, 2013) as well as the structure and content of the course, i.e. how the study material of research methods is presented to the learners (Hisle-Gorman & Zuravin, 2006; Lim, Dannels, & Watkins, 2008). Findings have shown that students' activeness of reading and posting in the online discussion and use of learning materials is related to higher assignment marks of research methods (Campbell et al., 2008) and students' perceptions of the existence of a high-quality learning community (Lim, Dannels, & Watkins, 2008).

Previously, it has been indicated that an online course should be simple and user-friendly. The pedagogical principles of designing an online learning environment should be similar to those of face-to-face learning (Lie & Cano, 2001) and strongly related to the teaching objectives (Dumitrica & Jarmula, 2022). Several researchers recommended integrating online learning with face-to-face learning to supplement learning opportunities (Lie & Cano, 2001; Ni, 2013). The results of Lie and Cano's (2001) study revealed that learners were satisfied with the integration of online research methods learning with face-to-face learning because there were two types of study material and learning activity that complemented each other. The students felt that they were able to use their time more efficiently and that learning met the varied needs and levels of the students. After this, students were more ready to learn with higher basic knowledge of research methods in a face-to-face seminar. Effective research methods courses should take into account that there is active interaction between participants in an online environment (Dumitrica & Jarmula, 2022; Lim, Dannels, & Watkins, 2008; Schulze, 2009), avoid learner isolation and encourage personal and supportive spontaneous interactions between learner and lecturer (Lim, Dannels, & Watkins, 2008). Web-based learning should not be perceived as extra work (Dumitrica & Jarmula, 2022; Lim, Dannels, & Watkins, 2008) and disrupted by technical problems (Lie & Cano, 2001).

Collins (2016) has reviewed how digital technology and its affordances are being used in SSRM teaching to attain the pedagogical goals of the subject. She outlines the useful role of digital technology in building student and teacher confidence in teaching SSRM. This can be accomplished by enhancing students' understanding of and ability to use data analysis software or by creating web interfaces that enable students to explore survey data independently. Through the use of interactive or collaborative tools, students and teachers are able to create a safe, collective learning environment. Additionally, the use of digital technology helps students achieve learning outcomes, for example through taking online quizzes, receiving regular, fast feedback and iden-

tifying problematic threshold concepts. It also facilitates communication between peers, between students and teachers and between students and the outside world. Lastly, digital technology contributes to breaking down barriers to learning—it facilitates the availability of learning resources as well as allows students to learn at any time and place they choose.

Metzler et al. (based on Collins 2018) have summarised pedagogic considerations for online methods courses and complemented these with particular suggestions for an online teaching environment. See the detailed over from Appendix A.

DISCUSSION AND CONCLUSION

The aim of this article was to summarise evidence on the effective teaching of social science research methods in an online setting. This research led to several conclusions that informed the implementation of the innovative Navigating Social Worlds toolbox. This toolbox is a handy teaching and learning aid in current turbulent times when face-to-face learning has become even more threatened by different health, political and economic factors.

In teaching SSRM, active use of learning materials (Campell et al., 2008) and engagement of students are important goals (Kilburn et al. 2014). This means using exercises and examples to activate learners and illustrate parts of the research process. There are two ways in which students' activeness and engagement is supported in the Navigating Social Worlds toolbox. First, the toolbox includes several exercises that provide just-in-time feedback to students, which may also reduce their anxiety in learning SSRM (Kilburn et al. 2014). Second, students are directed to work with their own research—find research gaps, set research goals and questions and collect data. Using relevant and authentic data reduces students' anxiety and stimulates their interest (Nind 2020).

Encouraging critical reflection, as indicated by Kilburn and colleagues (2014) also plays an important role in addressing student anxiety and uncertainties in learning SSRM. The Navigating Social Worlds toolbox provides students with a combination of theoretical materials and exercises that promote reflective and critical thinking. For example, at the end of the modules, students are asked to reflect on their learning—to describe their learning experience, articulate their learning, etc.

Students enter SSRM courses with varied academic and professional backgrounds, as pointed out by Lie & Cano (2001) and MacInnes (2012, cited through Metzler et al.). Furthermore, learners' personal preferences and characteristics may be different (Lie & Cano, 2001; Lim, Dannels, & Watkins, 2008). Therefore, it is important to take into consideration these variabilities when planning SSRM courses. The Navigating Social Worlds toolbox, for example, uses examples from several social science domains to address a variety of students' needs. It contains various topics and tasks that support several pedagogical approaches, teaching strategies, tactics and tasks, as Nind and Lewthwaite (2019) have pointed out. Thus, the toolbox enables the application of a student-centric, active, experiential, problem-based, standpoint-led, visual and verbal approach to learning and teaching. This provides an opportunity to use the toolbox for

various purposes in order to support the acquisition of research methods topics.

The integration of online learning with face-to-face learning has been recommended by researchers as a way of supplementing the learning process (Lie & Cano, 2001; Ni, 2013). The Navigating Social Worlds toolbox provides opportunities to learn both in online and offline settings. For example, it includes learning resources (e.g. reading materials) that students can learn at any time and place they choose. There are a variety of quizzes available online for immediate feedback. However, the toolbox also provides tasks and discussion points for face-to-face learning.

There is also a need for more support for the teaching staff of SSRM courses, as a lack of pedagogical expertise has been identified as a challenge in teaching SSRM (Nind 2020). This problem can be solved by providing additional guidance to teaching staff. Guidance may include pre-created exercises for students or instructions on how to ask them questions on the topics.

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Appendix A.

	Social research methods teaching guidance (Lewthwaite and Nind, 2015)	**Additional online considerations**
Design for diverse learner groups	• Provide prospective learners with details on the course aims and content, being explicit about the level of prior knowledge and experience required. • For advanced short course: Collect information about learners´ knowledge, skills and expectations as part of the course registration process. • Design sessions with diverse learner knowledge and skills in mind and build in some flexibility. • Build in time for learners to introduce themselves, their experience, and expectations of the course. • Consider ways in which you can harness student expertise, e.g. through peer learning, group work, seminars.	• Specify technical requirements, e.g. hardware and software and time requirements. If there are synchronous sessions then provide details and clarify expectations regarding attendance. • Reiterate course expectations regarding prior knowledge and experience. • Consider ways in which you can support diverse learners, e.g. through reference to introductory material, finding out about their research interests. • Consider strategies you will use to encourage students to use any online chat facilities, e.g. asking questions.
Structure and sequence course content	• Clarify the structure and sequencing of course material (particularly important for short courses, which are often fast-paced). • Manage time constraints, e.g. by providing wider reading, additional exercises, highlighting wider learning communities. • In sequencing course content consider mixing up the format to retain learners´ interest. • Hands-on activities can help consolidate learning of conceptual ideas. • Evaluate learners´ understanding through questioning and being alert to body language. • Provide opportunities for small group learning, Q&A sessions and clinic sessions, where learners can discuss issues they are facing in their own research.	• Spend time planning the online course structure and sequencing. It can be valuable to seek advice and input from education technologists and colleagues who have taught online before, who can help with choosing technologies, chunking and sequencing material. • Decide whether your course will involve synchronous as well as asynchronous elements, and what the purpose of each will be. • Consider whether you will use video as well as text for asynchronous sessions. Think about different forms of video, e.g. talking head, research in action, animation to bring abstract concepts to life. • Students appreciate feedback, so think about ways in which they can consolidate their learning and receive feedback, through quizzes, peer feedback, and activities where they have to go away and do something then answer questions on what they did, peer feedback.

Promote learning through use of data	• Consider how the use of teaching data sets might be helpful to students in grasping key ideas and concepts, and in learning about aspects of the research process such as data management and analysis. • Are there existing teaching datasets available to use that will meet your teaching goals or will you create your own, perhaps with input from your students?	• How will students access analysis software? Is it possible? • What support, if any, will be provided to students around installing analysis software and dealing with technical queries? • How will you deal with software updates once the course goes live?

Table 2. Direct excerpt from Metzler et al.: Pedagogic considerations for online methods and data science courses