Rewriting History: How Digital Games are Revolutionising NSW Secondary History Classrooms

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Abstract: Despite the significant growth in educational digital gaming, secondary History teachers in Australia lack have clear guidelines regarding gaming pedagogy, and as a result, may use digital games inconsistently. While there is a push from the Department of Education (DoE) for schools in New South Wales (NSW) to engage with digital learning technologies, professional development on digital game use is limited. The Schools Digital Strategy (SDS) is a comprehensive project driven by the DoE. Implemented in 2019, it aims to improve digital services to public schools through addressing existing issues such as connectivity, equality, and investment in devices, networks, and infrastructure. Whilst the SDS Full Report (2019) mentions computer games, the lived realities of secondary History teachers in NSW attempting to implement digital games has not previously been studied. A significant research gap exists in the academic literature on the use of digital games in secondary History classrooms in NSW. This study investigates how secondary History teachers in NSW implement digital games in their classrooms and the purpose of their use. Furthermore, identification of barriers that History teachers face when using or attempting to use digital games will be mapped against the SDS. A mixed method research approach was employed. A scoping literature review was undertaken to gain a baseline for current academic research, as well as an audit of NSW initial teacher education (ITE) programs offering units where digital game pedagogy is delivered. Additionally, surveys and interviews of secondary History teachers in NSW were conducted to understand the lived realities of the teachers, and the barriers they face while attempting to implement digital games in their teaching. This study has implications for teacher education and professional development programs to support effective implementation of digital games into the History classroom.

Keywords: Digital game-based learning, History education, Teacher professional development, Digital divide, New South Wales (NSW)

1. Introduction

Video game use in education is not a novel pedagogical practice. Their use in teaching and learning practices has increased due to benefits students acquire when engaging in video game play. Research identified that it enables students to develop key skills including leadership (Kee et. al, 2011), 21st century learning skills such as collaboration (de Freitas et al., 2013) and critical thinking (Gee, 2004), and improvements in motivation (Gomez & Porras, 2018) and engagement (Annetta, 2008).

The Oregon Trail (MECC, 1971), one of the most well-known historical education games, has seen multiple iterations released and subsequently used by generations of American students. Since then, games such as *Sid Meier's Civilization* (MicroProse,1991), *Assassin's Creed Origins Discovery Tour* (Ubisoft, 2017), and *Age of Empires* (Ensemble Studios, 1997) have been used in History classrooms across the world. Moreover, the seminal work of James Paul Gee's (2004) *What video games have to teach us about learning and literacy*, encouraged a plethora of articles, frameworks and models designed to aid teachers' use of video games in their classrooms: TPACK-G (Hsu et al., 2013), the Four Dimensions Framework (de Freitas & Oliver, 2006), and the Foundations of Game-based learning (Plass et al., 2015). To aid Australian educators using serious games, Southgate et al., (2017) also developed a model, however it does not cover all forms of video games, let alone video games for use in History secondary classrooms. Therefore, there remains a significant gap between theory and practice regarding the pedagogical applications of video games in NSW secondary History classes. As a result, this study aims to identify current video game use by secondary History teachers in NSW schools. This will be achieved through engaging in a mixed methods research process, allowing the exploration of the lived experiences (van Manen, 2003) of teachers within NSW, and then mapping the results against key areas of the SDS; a comprehensive plan that outlines the strategies identified to improve the technological abilities of the NSW public school system (Department of Education, 2024).

To address the research gap, the following research questions were considered:

RQ1: What insights can be gathered from the existing body of literature regarding digital game use in NSW : secondary History classrooms?

RQ2: Which digital games are currently being used by teachers in NSW secondary History classrooms?

RQ3: How are digital games currently being used by teachers in NSW secondary History classrooms?

RQ4: How do the research findings compare against the NSW Department of Education's Schools Digital Strategy?

For the purposes of this study, the definition outlined by Clark et. al in 2016 will be used in reference to digital games: "a digital experience in which the participants (a) strive to achieve a set of fictive goals within the constraints of a set of rules that are enforced by the software, (b) receive feedback toward the completion of these goals (e.g., score, progress, advancement, win condition, narrative resolution),and (c) are intended to find some recreational value." (Clark et al., 2016, p.9). The term digital games was used to identify a range of video games for use within classrooms which included the following:

- *Serious games*: games whose purpose it is to educate as opposed to entertain (Arnab et al., 2015).
- *Digital game-based learning*: the use of digital games to encourage players to achieve learning goals (Gee, 2004).
- *Drill games:* the use of repetitive game play with increasing difficulty to build skills (Alessi & Trollip, 2001).
- *Gamification:* when gaming elements, such as scoreboards and avatars, are used to encourage and motivate learning activities (Kapp, 2012).
- *Commercial off-the-shelf (COTS):* those which can be purchased and/or accessed with ease and often align to historical events (Pallavicini et al., 2021).

Due to the variations of digital/video game definitions, virtual and augmented reality have not been included in this study as they are not often used for enjoyment (Gibson et al., 2001) and therefore do not meet the definition.

2. Methodology

A mixed method research approach was undertaken to answer the research questions; this included a scoping literature review, survey, interviews, NSW ITE program audit, and mapping results against the SDS. Onwuegbuzie and Leech (2007) argue that when undertaking qualitative research, smaller sample sizes are appropriate when the study is exploratory. Using both surveys and interviews will allow for data triangulation (Brannen, 2004) and provide relevant material for mapping against the SDS. Ethics approval was obtained in April 2025 through Western Sydney University (H16510).

2.1 Scoping Review

The scoping review was used to identify current practices regarding digital game use in secondary NSW History classrooms, in line with RQ1. Outlined by Arksey and O'Malley (2005), the purpose of a scoping review is to gain an overview of the research providing direction for further study. Search parameters previously identified by Cole et al. (2023) were used to guide the creation of the search terms as well as the pre-identified definition of digital game (see Table 1).

Table 1*:* Scoping review search terms

Block 1: Population	Block 2: Subject	Block 3: Location	Block 4: Digital Games
"secondary school" OR "high school" OR "middle school"	History	"NSW" OR "New South Wales"	"video gam*" OR "gamification" OR "game-based" OR "educational gam*" OR "edutainment" OR online-multiplayer OR "electronic gam*" OR "digital gam*" OR "serious gam*" OR "game-based pedagog*" OR "computer gam*" OR "drill game"
*Asterisks serves as the Boolean truncation to capture words ending in alternative forms			

Inclusion and exclusion criteria were also devised using Cole et al. (2023) as a reference point. Additional terms were included to ensure the capture of relevant citations in relation to the research questions and aim of the study (see Table 2).

Table 2: Scoping review inclusion and exclusion criteria

Study variables	Inclusion criteria	Exclusion criteria
Population	Studies within a high/secondary school	Primary schools, early childhood centres, TAFE, universities
Subject	History	Subjects that are not History
Location	NSW	Locations outside of NSW, including other states/territories within Australia, international studies
Digital game definition	Drill games, game-based learning, gamification, video games, educational games, serious games, computer games, digital games	Virtual reality, augmented reality
Literature	Peer-reviewed, published after 2000	Published prior to 2000, grey literature (including conference papers)

2.2 Survey

A survey capturing qualitative and quantitative data questions was used to answer RQ 2 and 3. Likert Scale questions identified teacher perceptions regarding barriers to digital game use, impact of digital games on learning outcomes, and ability for digital games to teach content. All Likert scale questions were numbered 1 – 5, with 1 being *not effective at all* and 5 *being very effective*, therefore providing numerical data for analysis (Cohen et al., 2017). Response boxes allowed participants to justify answers and provide additional information. Surveys were distributed through social media channels (Facebook groups) to recruit participants.

2.3 Interviews

Participants were self-identified through the survey who were interviewed via Zoom using semi-structured questions. The audio was recorded for the purposes of transcript creation for data analysis (Cohen et al., 2017). The use of Zoom also mitigated issues of geographical distance and significantly reduced costs (Creswell & Guetterman, 2019). The questions were designed to aid the answering of RQ2 and 3.

2.4 Mapping Against SDS and University Audit

After the completion of the survey and interviews, the results were analysed and coded. The code was devised using a top-down approach guided by the scoping literature review (Urquhart, 2013). During the process, additional codes were developed based on responses (Stake, 2010), thereby creating a middle-range coding process (Urquhart, 2013). This allowed for the triangulation of the data to be mapped against the SDS. The SDS identifies nine strategic focus areas that outline overarching objectives for the initiative, with #3 addressing the need for teachers' effective use of technology to enhance teaching and learning, and #7 improving the current inequity issues to devices because of geographic, technical, and professional differences (Department of Education, 2019). Both focus areas were planned to span all 4 Horizons (stages) and therefore had a completion date of late 2022/early 2023. The final stage, Horizon 3, was to be completed within 3 years of the rollout of the initiative and indicates that there should be 'equity in education access' and 'advanced digital literacy the norm' (Department of Education, 2019, p.10). These elements were identified for analysis as they were likely to be reflected in the survey and interview responses, and to answer RQ4. An audit of NSW ITE programs identified if any included video game pedagogy for further mapping against strategic focus area #3. Universities and courses offered were identified through the AITSL Accredited Teaching Program list (AITSL, 2025).

3. Results

3.1 Scoping Review

No sources were identified using the search terms in Table 1. Three further iterations of search terms were developed to capture relevant citations. The second iteration removed 'NSW' from Block 3: Location and replaced it with 'Australia' which resulted in two citations. To identify any digital game use within secondary classrooms in Australia, Block 2: Subject, was removed, resulting in 18 citations identified. The final iteration of

the scoping review search terms reintroduced Block 2: Subject, but removed Block 3: Location, to capture citations regarding the use of digital games in History classrooms internationally, which generated 82 citations.

Together, 109 citations were identified from the four iterations of searches. From 109 originally identified citations, 27 remained after the application of inclusion and exclusion criteria. Figure 1 outlines the screening process.

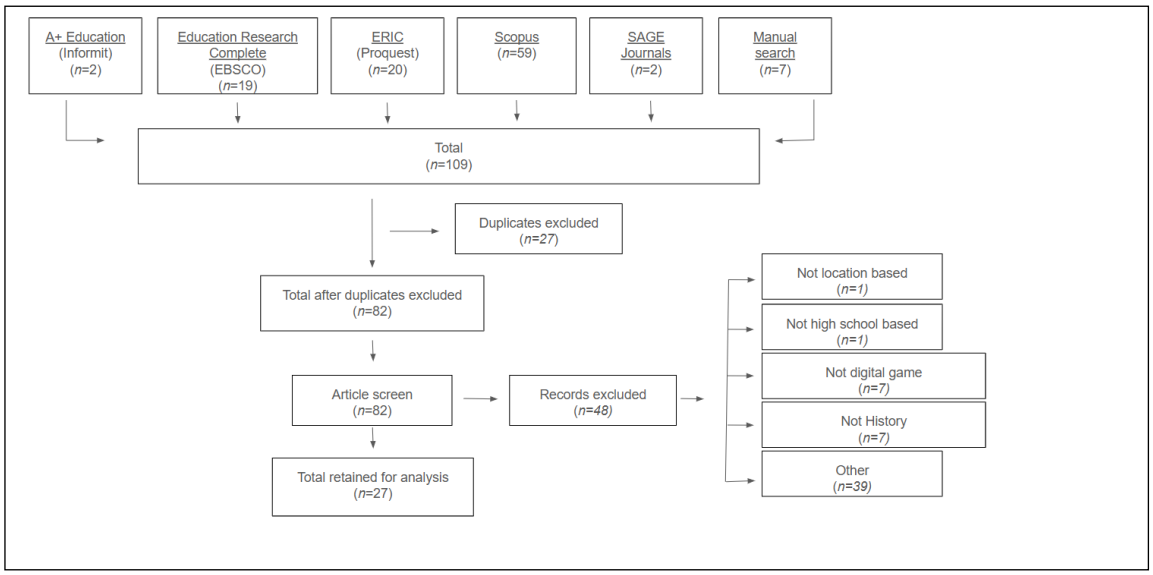

Figure 1: Screening process for scoping review

3.1.1 Demographics of retained studies

A total of 3440 students participated in the studies across 49 different schools with 53.03% of participants females (*n*=499) and 46.87% were males (*n*=441). There were 237 teachers identified as participants across six studies; however, it should be noted that seven studies mentioned teachers but did not provide numbers regarding participants. Of the retained citations, 55% (*n*=15) were published in the past ten years, with 33% (*n*=9) from within the past five years.

3.1.2 Location of studies

Table 3 identifies the location of the studies. While there were no citations that were captured in the initial search, the later iterations captured results from within Australia and internationally.

Table 3: Location of identified studies

Search	Location of search	Results	Retained result locations
1	NSW	0	0
2	Australia	2	0
3	Australia	4	New South Wales (2) Western Australia (2)
4	International	16	Greece (2) Taiwan (3) Canada (2) USA (6) Israel Poland

Search	Location of search	Results	Retained result locations
			Germany
Manual	International	6	Australia (Queensland) Australia (New South Wales) Australia (Western Australia) USA (3)

3.1.3 Research Question 2 - digital games used

All the captured citations made mention of/used digital games. There were 81 games identified with 85% (*n*=23) of the studies using digital games in their research. Within that group, 47% (*n*=11) used COTS and the remaining studies (*n*=12) used digital games designed by the researchers. Results demonstrated that the most popular genre of games used were strategy games including games from the *Sid Meir's Civilization* franchise and the *Age of Empires* franchise. Strategy games were identified 63 times within the retained articles as games for use in schools.

3.1.4 Research Question 3 - purpose of digital game use

The most frequent use for digital games was to teach content at 69% (n=16). Engagement and motivation were identified as research objectives in 48% (n=11). Additionally, digital games used as supplementary materials were used by 8% (*n*=2), and 13% (*n*=3) for 21st century learning skills.

3.1.5 Additional area of interest

The need for teacher training (both in-service and pre-service) was highlighted in several studies. Gutierrez et al. (2023) identified that teacher's self-efficacy and positive attitudes towards using digital games improves because of undertaking professional development. Additionally, Kessner and Harris' (2022) creation of the 'opportunities to practice' model not only allows students to refine skills and develop knowledge, but also acknowledges that teachers would also benefit from its use as it enables them to identify learning opportunities for students, as well as to think critically about how digital games can be used to improve historical thinking skills.

3.2 Survey

Twenty-one participants were recruited through social media and completed the survey between 15th and 25th April 2025, with 18 meeting the inclusion criteria. Demographic data identified 83% (*n*=15) were from government schools, 17% (*n*=3) and from Catholic schools. 11% (*n*=2) taught only History, whereas 83% (*n*=15) taught both History and Geography. Teaching experience followed a classic bell-shaped distribution, with most having between 6 and 15 years (see Table 4).

All participants had used digital games in their teaching. The most frequent game was *Kahoot!* (Kahoot, 2013) (*n*=14), followed by *Blooket* (Stewart & Stewart, 2018) and *Minecraft* (Mojang, 2009) (*n*=13). Other digital games included the *Age of Empires* and *Assassin's Creed* series.

The use of digital games to teach content was identified by 83% (*n*=15) of respondents as the main reason for their use, with formative assessment, as a reward, or to fill in time as the least selected reason for use.

Participants identified the biggest barrier to using digital games was access to devices (*n=15*) and professional development (*n=10*). Results identified that 75% (*n=12*) of participants either somewhat or strongly disagreed that student interest in digital games was a barrier to using digital games in their teaching and learning activities.

Table 4: Survey participants

Question	Option	Number of responses
3. Age range	18 - 30	5
	31- 40	5
	41 - 50	3

Question	Option	Number of responses
	51+	5
4. Teaching experience (in years)	0 - 5	4
	6 - 10	3
	11- 16	6
	16 - 20	1
	21+	4
5. School type	Public	15
	Catholic	3
	Independent	0
6. Subject/s taught	History	2
	Geography	1
	History and Geography	15
7. Digital game use	Yes	18
	No	0

3.3 Interviews

Two interviews were conducted during the research period and were recruited through the final survey question. A middle-range coding process was undertaken which identified several categories and codes. The use of digital games as a pedagogical approach was the most frequent category mentioned (*N*=82), in particular the codes for differentiation (*N*=23) and engagement/motivation (*N*=25). Interestingly, the most frequently cited code was within the implementation barriers category: technology and infrastructure/internet issues (*N*=36). "John", Head Teacher HSIE in a Western Sydney high school, also frequently mentioned the lack of confidence from teachers (*n*=11) (see Table 5).

Table 5: Interview participants

Pseudonym	Age	Teaching experience	School type	Subjects taught
John	18 – 30	6 – 10	Public	History and Geography
Sally	18 – 30	0 – 5	Public	History and Geography

3.4 Mapping Against SDS

From the SDS Full Report (2019), Strategic Focuses #3 *Support improved teaching and learning*, and #7 *Strengthen equity foundations*, were targeted for mapping data against due to their alignment with teaching and learning activities, and device equity. Results identified three key areas regarding the use of digital games in NSW secondary History classrooms: the lack of access to devices as a barrier, the need for professional development, and the need for NSW DoE recognition of digital games as a legitimate teaching and learning tool.

Survey data outlined the lack of professional development was a barrier to the implementation of digital games in NSW secondary History classrooms. This was supported in the interview with "John" "*… some teachers that don't have the full kind of confidence in themselves to be able to teach through a game.*" An element of Strategic Focus #3 was designed to support teachers effectively using digital technology, including digital games and gamification, through ongoing and innovative professional development (Department of Education, 2019). The SDS identified a completion target of two years after the initiative roll out, in 2019.

As identified in survey and interview results, a lack of access to devices was identified as a barrier for using digital games. The SDS outlines in Strategic Focus #7 that device equity should have been achieved by early 2023 (Department of Education, 2019). The most significant barrier to using digital games in classrooms identified by survey participants was access to devices, and this was supported in interviews, in particular, bring your own device (BYOD) which makes it difficult to design teaching and learning activities (Janssen & Phillipson, 2015). "Sally" outlined the struggles of implementing digital games and not knowing if students' devices would support the program "Bring your own device is really frustrating… five kids have Chromebooks, the rest have MacBooks… iPads or tablets." This was mirrored by "John" - "Every faculty has about… 30 to 60 Chromebooks and that's for every class that's on at the same time…". The Rural Access Gap program (an initiative within the SDS) aimed to

reduce the digital divide between metropolitan and rural schools. The program was able to reduce the student-device ratio from 1:6 to 1:4 (NSW Department of Education, n.d.), much higher than the Digital Education Revolution target of 1:1 back in 2008 (Newhouse, 2014).

It should also be noted that the SDS states that 'By 2025 NSW Education will be an education leader in a digital world' where 'digitally literate pre-service candidates thrive in the digital school environment'. (Department of Education, 2019, p.15). Additionally, the NSW DoE also acknowledges that "We need to address existing areas of digital debt" by "demonstrating to our pre-service staff - our next generation of teachers - that we have a modern working environment." (Department of Education, 2019, p.34). An audit of NSW ITE programs between March 8th and March 20th, 2025, offering ITE programs identified 15 institutions offering 75 degrees, and within those degrees, there were 64 mandatory technology units. Of those 64 mandatory technology units, only two units briefly mentioned digital/video games for examination. Both units were at a large metropolitan university, with only one of the units available for ITE secondary students. Considering survey and interview results, as well as the statements made within the SDS, there is no clear evidence that the NSW DoE supports the claim that use of digital games can "make learning more meaningful, authentic, accessible and engaging." (NSW Department of Education, 2023).

4. Discussion

Several key themes were identified for further discussion regarding the use of digital games in NSW secondary History classrooms; strategy games used for teaching content, barriers to using digital games, and a clear digital disconnect between government initiatives, ITE training, and the experiences of secondary History teachers in NSW.

4.1 Strategy Games Used for Teaching Content

While the survey results indicated that quiz-based games (i.e. *Kahoot!*) were the most frequently used, interviews with NSW secondary History teachers identified that strategy games were used to teach content. This reflects the results of the scoping review where strategy games were used in 45% (*n*=5) studies using COTS games. Strategy games such as *Sid Meier's Civilization* are colonial-based games, where the focus is on exploitation, expanding, and ultimately extermination (Emrich, 1993). The settler-colonial perspective in strategy games is the status quo (Loban, 2023), yet the Australian Curriculum and Reporting Authority (ACARA) has included Aboriginal and Torres Strait Islander Histories and Cultures as a cross-curricular priority across each key learning area (Australian Curriculum and Reporting Authority, 2022), including History. This digital dispossession of Indigenous people from digital games (Bird, 2021) perpetuates colonial perspectives. It is vital that secondary History teachers understand the implications of using strategy games to teach content (McCall, 2023) and develop teaching and learning activities which encourage students to recognise and question colonial practices.

4.2 Barriers to Digital Game use

Survey participants identified that the most prominent barrier to digital game use is student access to devices. At the conclusion of the National Secondary School Computer Fund (New South Wales Government, 2009), schools moved to a variety of BYOD models where students can either bring in any device, bring a school specified device, or a device provided by the school (Janssen & Phillipson, 2015). Unfortunately, these options prove difficult for students living in low socio-economic areas, resulting in limited access to technology (Australian Bureau of Statistics, n.d). A report released in 2024, some two years after Strategic Focus #3 was to be achieved, identified that students in Western Sydney "...have the lowest levels of digital inclusion across all metrics - access to devices, internet connectivity and digital literacy." (Dastyari et al., 2024, p11). The inability for students from low socioeconomic backgrounds to access devices creates a significant equity gap, as digital game use as a teaching and learning tool has been demonstrated to develop 21st century skills (Southgate, et al., 2017), improve learning outcomes (Mustafa et al., 2013), and increase student engagement (Connolly et al, 2012). This disparity in access perpetuates existing educational inequalities and hinders students' ability to develop skills essential for academic and future success.

4.3 The Digital Disconnect

This study has highlighted a disconnect regarding the SDS targets, professional development, and the lived realities of secondary History teachers in NSW. Although the SDS projected device equality by the beginning of 2023 (Department of Education, 2019), the results indicate ongoing challenges in this area. As well as students' inability to access devices as a barrier to using digital games, the limited number of ITE programs providing video

game pedagogy demonstrated in the university audit also indicates an inadequacy to prepare future teachers. Research identified in the scoping review outlined the need for teacher professional learning, at both the in-service and pre-service levels, to ensure effective digital game pedagogy (Gutierrez et al., 2023; Kessner & Harris, 2022). This is supported by an Australian study undertaken by Magen-Nagar et al. (2019) which outlined the benefits (such as the use of constructive learning environments and 21st century skills) gained by in-service teachers when undertaking learning of video game pedagogy. Secondary History teachers in NSW are using digital games in their classrooms with limited technological infrastructure and pedagogical knowledge, however, with support in place, could further improve the learning outcomes of their students as outlined in the literature review.

5. Limitations of the Study

Due to the nature of the research questions and aim of the study, citations of relevance may have been missed. In particular, the decision to not include AR or VR may have been a missed opportunity to explore new technologies and is suggested for inclusion in future studies. Due to the limited time frame to capture survey responses, the results cannot be said to directly reflect the perspectives of all secondary History teachers in NSW. An extended window of time to capture additional responses will improve the reliability of results.

6. Conclusion

This study provides key insights into the use of digital games by secondary History teachers in NSW. Although 100% of survey participants use digital games, there is a significant gap in in-service and pre-service teacher learning opportunities, despite academic studies identifying the benefits. Results of the interviews identified that NSW History teachers were more likely to use digital games such as *Kahoot!* or *Blooket* in their classrooms, whereas academic studies demonstrate COTS strategy games, such as *Sid Meier's Civilization*, are beneficial in delivering content. However, the use of COTS strategy games engenders concerns regarding ongoing colonial perspectives embedded in these games, therefore highlighting the need for digital game pedagogy within ITE programs and as ongoing professional development opportunities.

These pedagogical challenges are further compounded by student access to devices and infrastructure issues is a crucial barrier to digital game implementation in History classrooms. Although this study is narrowly focused, the results extend universally across subjects and Australian classrooms, therefore the implications are substantial. BYOD policy revision and delivery of a Metro Access Gap program are required by the NSW state government to ensure they achieve the legacy of the SDS and close the digital divide for students.

Future research on pre-service teacher digital game pedagogy, government policy regarding student digital inclusion, and the benefit of digital games for NSW secondary History students, is required to ensure students are supported by a future-focused government.

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AI declaration: NotebookLM was used for the initial summary of a select number of articles. Claude AI was used to provide feedback regarding clarity of writing.

Authors' note: This research was conducted based on the 2019 Schools Digital Strategy document, which had been identified by members of the NSW Department of Education as the most current version available during the data collection period. Subsequently, a 2022 version has since been confirmed as the most up to date. The findings and analysis presented in this article reflect the 2019 version that informed the research design and data collection.

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