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Conducting sex and relationships research with young people in secondary schools: the use of clickers as a novel, interactive and confidential data collection method

Research has identified embarrassment and confidentiality as key issues for young people when discussing relationships and sex during sex education in schools. A synthesis of qualitative research examined studies from 10 different countries over 25 years and found that despite the wide range of geographical areas and cultures, young people's views about sex and relationships education were congruent. The findings produced evidence that adolescents report feeling embarrassed and vulnerable during sex and relationship education classes (Pound *et al.*, 2016). Qualitative research with young people in Scottish secondary schools has found that embarrassment is a central emotion involved in discussing sexual health and sex education (Van Teijlingen *et al.*, 2007).

Further evidence has demonstrated that embarrassment, fear of judgment and lack of confidentiality are frequently cited as barriers to young people accessing contraception or sexual health services in Scotland (Murphy, 2015). Consistent with this finding, research with young people has highlighted that anonymity lessens the feeling of embarrassment when discussing such topics in school, with confidentiality being a main concern when accessing advice or support (Walker *et al.*, 2011). In addition, are findings that engaging young people in any form of research can be challenging. Important issues for young people taking part in any sort of research include fairness, inclusiveness, the use of fun methods and literacy when completing questionnaires (Hill, 2006). These issues may become more salient when conducting sex and relationships research with adolescents in schools.

Previous academic research with young people in Scottish schools has used paper-and-pencil

questionnaires under exam conditions to collect sex and relationships survey data (Wight *et al.*, 2002). Further sex and relationships research with Scottish young people has used online surveys outside of school settings (Tomson, 2014). Web-based surveys have been shown to reduce the cost of data collection (Scott *et al.*, 2011). However, differing and conflicting response rates for web-based and paper-and-pencil questionnaires have been found; a meta-analysis of studies using these methods found that response rates were 20% lower for web-based surveys than paper and pencil surveys (Shi & Fan, 2008). Wyrick & Bond, (2011) compared web-based and paper-and-pencil survey responses in high school students, students completing the web-based version of the survey in computer labs with others present were four times more likely to skip an answer to 'sensitive' questions. Health-based research with adolescents has also found equivalent response rates when using both web-based and paper and pencil surveys in school settings (Eaton *et al.*, 2010).

A systematic review of data collection methods used with young people identified language barriers, literacy skills and lack of confidentiality as limitations of paper-and-pencil questionnaires; limitations of web-based surveys were identified as data security problems and difficulties in establishing a rapport with participants (Flanagan *et al.*, 2015). Survey researchers have utilised other forms of technology such as personal laptops or internet tablets to collect survey data from young people. For example, Denny *et al.* (2008) conducted a pilot study in New Zealand schools where students were randomly assigned a laptop or a hand-held Internet tablet device to respond to health behaviour survey questions. Of the

students who expressed a preference between these two methods, Internet tablets were found to be more private, confidential and perceived it easier to answer sensitive questions more truthfully than when using a laptop. However, significant expenses may occur if individual laptops or Internet tablets are acquired for each research participant.

This article presents a novel method of collecting anonymous sex and relationships survey data from young people in Scottish secondary schools. The method was used as part of a mixed methods sequential explanatory PhD research project which included the collection of both quantitative and qualitative data. The purpose of the study was to explore the knowledge, attitudes and beliefs about sexual health and experiences of relationships and sex education from young people in Scottish schools. In the first phase of the research, a survey was conducted with 715 female and male school pupils, aged 13-15 years, in three different secondary schools situated in three different local authority areas within the West of Scotland. A classroom response system with clicker technology was used as an interactive method to collect sex and relationships survey data from the young people. Since the 1980s, the use of clickers has proliferated on college campuses (Zhu, 2007) but no evidence was found for the use of this technology with young people in order to collect sex and relationships survey data. This novel way of responding to survey questions assures anonymity and confidentiality for participants.

Classroom Response System

A classroom response system is a portable system used in a face-to-face setting to poll students and gather immediate feedback in response to questions posed by instructors. Students key in responses using small hand-held remote transmitters or "clickers". These transmitters send signals to a receiver that is connected to the instructor's laptop. Questions are displayed in a PowerPoint presentation format, specialist Turning Point software on the instructor's machine instantly tabulates and graphs student responses. Clickers easily automate data collection and minimize error; they allow collation of demographic data quickly, efficiently and - most importantly for young people - anonymously.

One of the main advantages of the use of an electronic response system over non-technical methods for gathering survey data in school

classroom settings is the anonymity it provides. Zhu (2007) asserts that the anonymous feature of the clicker system allows initiation of class discussion and debate on sensitive topics, and thus, viewpoints which might not otherwise be expressed during class discussion are given a voice. Studies conducted in the USA have evidenced the benefits of using clickers as a teaching aid with university students. Draper & Brown (2004) conducted an experiment aimed at increasing interactivity during university lectures using classroom response systems; they found that a recurring theme in their research with students was the importance and benefits of the anonymity provided by the clicker response units. The pedagogical value of clickers in the academic setting has been identified further within educational research. Judson & Sawada (2002) found students were more likely to attend class if they were aware that classroom response systems would be used. A randomised controlled trial by Miller *et al.* (2003) found that participants who used clicker response systems in lectures rated the quality of the talk, the speaker, and their level of attention significantly higher than the non-users. Hall *et al.* (2005) found that students reported classroom response systems helped them pay more attention in class because they anticipated responding to a question using a clicker. Test scores have also been found to be higher when classroom response systems are used as opposed to paper and pencil assessments (Arneja *et al.*, 2009).

De Vaus (2014) argues that face to face surveys are the most effective method for obtaining representative response rates to questions. The use of a classroom response system for the PhD research provided this contact whilst maintaining participant confidentiality during the data collection in schools. It has been suggested that young people are 'digital natives' living in an increasingly intense visual culture (Chalfen, 2009). The use of clicker technology and visual imagery incorporated into the power point survey presentation sought to address this issue and engage young people to be active participants in the research.

Pilot study

A specifically designed questionnaire was devised with survey questions to evaluate relationships and sexual health attitudes, knowledge and behaviour from young people at secondary school. The researcher created a

PowerPoint presentation incorporating the interactive survey questions using Turning Point software. Youth friendly language and culturally relevant imagery in the form of photographs, pictures and cartoons were used to illustrate the questions.

Conducting a pilot study prior to the main study can enhance the likelihood of success and demonstrate that the methods and procedures are effective (Thabane *et al.*, 2010). As this was a novel data collection method with young people in schools a pilot study was conducted. The pilot study tested the use of the clickers as well as the language and wording of the questions at a youth group who provide peer health interventions. Young people attending the youth group reported that the clickers were easy to use and a fun, anonymous way to answer questions about sexual health and relationships. In addition, the researcher conducted two practice sessions at the end of two lectures with undergraduate students to review and refine any practical problems with the software and clickers that may occur in larger groups. Clickers were found to be an efficient and effective way of collecting data.

Conducting research with clickers

The survey presentation was conducted within secondary school classrooms using a laptop with Turning Point software and the corresponding clicker response units. The research was presented to a total of 37 individual class groups during a Personal and Social Education (PSE) lesson during school. The class sizes consisted of between 14 - 45 pupils. The same set of clicker response units was used to collect all data. The power point presentation was displayed on a white board in school classrooms via a projector connected to the researcher's laptop. A pre-prepared talk and phrases to present to participants alongside the questions was given and was the same in every presentation. Participants were asked to answer 50 questions. The order and wording of the questions was the same in every data collection situation. Participants responded to the questions using individual hand held clicker response units. The majority of the questions had three outcomes to respond to, i.e. button A=Yes, button B=No, button C=Don't Know. Two questions had four outcomes that had the option to press button D. At the start of each session the researcher gave a firm assurance that all answers would be anonymous and confidential. The use of this technology allowed for a count of responses to be displayed

during data collection to check that each participant in the room had responded to each question. It also allowed for a 10 second countdown to be displayed in the form of a stopwatch icon appearing on the screen to help prompt participants to respond by pressing their chosen button on the clicker. This was displayed after approximately 30 seconds and indicated that the next slide question was going to appear.

The majority of participants appeared to enjoy taking part in the survey, laughed and made comments such as,

"This is fun," "Can we do this next week?" "This is excellent," "When are you coming back in to do this again?"

The interactive nature of the data collection methodology allowed for the researcher to clarify any queries that participants had during the survey about the meanings of the questions. Response rates to each question varied between 96% and 100%. The survey data collection for each group of participants started and finished during the time set out for one teaching period in school, thus fitted in with the running of the normal school day.

This method was of value to the research process due to the ease of use in school classrooms. The researcher being present for every data collection session enabled answering of queries, clarification of the meaning of the survey questions if needed and observation of participants' responses to taking part in the research. The confidentiality provided by pressing a button on the clicker meant that there was little opportunity for others in the class to observe individual responses being input. Participants could 'hide' the small clickers under a desk or be mobile around the classroom to prevent others observing their responses. The use of this method of data collection was helpful and inclusive for participants with literacy issues. Further practical benefits of using this method of data collection during fieldwork meant that the researcher did not need to use school equipment. There was no need for follow up collection of paper surveys, or any need for the research to be carried out in a specific classroom as would be necessary if asking participants to complete an online survey in an ICT (Information and Communication Technology) class.

This method was of use within the wider mixed methods design of the research study. The fieldwork in the classroom to collate quantitative

data had the added benefit of the researcher being able to introduce herself and gain a rapport with potential participants of the qualitative aspect of the research. The instant graphical information generated from the reports after each data collection session enabled the formulation and refining of focus group questions to allow further deeper exploration of emerging patterns of responses to the survey, thus providing a rich data source for subsequent mixed methods analysis.

Conclusion

The use of a classroom response system with clickers is a novel, inclusive and fun way of engaging young people in schools to be active participants in research. Clickers were found to be a highly effective method to collect sex and relationships survey data from young people in school classrooms. The use of this method allowed young people to express their understandings and opinions about this subject in an interactive yet anonymous way. This data collection method could be used to collect survey responses from young people about other topics requiring sensitivity and confidentiality such as self-harm and suicide, or drug and alcohol use. The use of a classroom response system with clicker technology assists the collation of sensitive data efficiently and anonymously within the school setting, to enable every young person's voice to be heard.

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