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Smartphones at School: A Mixed-Methods Analysis of Educators' and Students' Perspectives on Mobile Phone Use at School

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Abstract: As smartphone ownership and use by children and youth has increased over the past decade, so has the presence of phones within the classroom. This has created unique challenges for teachers, school leaders, and policymakers. In this research study, we used a cross-sectional survey design to examine educator (n = 217) and student (n = 332) perspectives on students' mobile phone use in New Zealand schools through a mixed-methods approach. The results indicate that both educators and students were in favour of regulating students' phone use at the school level, but they were less in favour of a total ban approach. Most participants thought that students should not be allowed to have phones during class time, with rationale that centred around student learning and safety. Mobile phones were viewed as a distraction to student learning and compromised student safety through inappropriate use (e.g., photos and videos being taken at school and shared), cyberbullying, and social media-related issues. The findings of our research provide insights that are relevant to the development of educational policies around students' mobile phone use at school and contribute to a broader understanding of the impacts of mobile phone use at school on child and youth achievement and well-being.

Keywords: mobile phones; smartphones; school policy; student achievement; youth well-being; learning environment

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1. Introduction

The use of mobile phones has grown exponentially over the past decade, including among children and youth. Data from the United States show that between 2015 and 2021, the percentage of 8-year-old children who own a smartphone increased from 11% to 31% [1]. In 2021, approximately 90% of 14- to 18-year-olds had their own smartphones [1]. In New Zealand, the location of the present research, a 2018 study of 2061 children aged 9–17 years old found that 72% of children have access to a mobile phone that they use at least once a week, with phone use being the most prevalent among 15- to 17-year-olds [2]. *Smartphones* are mobile phones that, in addition to being telephones, include operating systems, web browsing, and access to software applications (such as social media platforms, games, and banking applications). Given that these are the predominant type of mobile phones used today, we use the terms *smartphone* and *mobile phone* interchangeably throughout this paper.

As smartphone ownership and use by children and youth has increased, so has the presence of phones within the classroom. This has created unique challenges for teachers, school leaders, and policymakers. While there is some support for using mobile phones as educational tools [3,4], the potential for detrimental effects may outweigh any benefits [5,6]. As a result, a small but growing number of countries, including France, Spain, and Switzerland, have instituted bans on student mobile phone use at school. In 2023, a UNESCO report on over 200 countries found that less than a quarter of the countries included in the report ban the use of mobile phones in schools [7]. Specifically, 13% of countries have laws and 14% have policies that ban mobile phones at school, with banning

by law being more common in low-income countries and banning by policy or guidelines being more common in middle- and higher-income countries [7]. The banning of mobile phones in schools remains contentious, however. For example, in Australia, a survey of 1070 people indicated that two-thirds of the respondents preferred students to be taught how to use mobile phones appropriately rather than banning their use [8].

1.1. Impact of Mobile Phones at School

Arguments in favour of banning mobile phones at school are based on research studies that have identified several negative impacts of student phone use. The clearest evidence available highlights impacts on academic performance. A meta-analysis of 39 studies across 14 different countries found that student mobile phones has a negative impact on educational outcomes, including test scores, grade point average, performance on laboratory tasks, and self-rated academic performance [9]. While there was some inconsistency in the findings, 36 studies reported a negative association between student phone use and outcomes, and only 3 reported a positive association [9]. In addition to academic implications, however, student phone use may have broader impacts on social and emotional functioning and well-being [10,11]. For example, while previous research has predominantly focused on mobile phone use across contexts (and not specifically within the school context), higher levels of problematic phone use have been associated with depression, anxiety, and cyberbullying victimisation and perpetration [12–14]. While some argue that removing phones will not remove the bullying itself, and only the medium through which it occurs [15], cyberbullying can occur in a more secretive manner that is substantially more difficult for schools to monitor and control than offline bullying [12].

Children and youth spend a substantial amount of their time on mobile phones. Removing mobile phones from schools could improve student outcomes by reducing the total amount of time that students spend on their phones and perhaps help to mitigate mobile phone addiction and cyberbullying. While this has not yet been explored empirically, there is evidence that removing mobile phones from schools has positive impacts on academic performance. Research from Spain [16], Belgium [17], and the United Kingdom [5] has demonstrated that banning students from using mobile phones in schools improves academic performance, and this is particularly the case for low-performing students.

Conversely, many educational technology researchers and practitioners argue that mobile phone bans will not solve several of the above issues identified, and that bans only serve to remove ways in which teachers and students can engage in digital forms of teaching and learning [15]. Mobile phone use in the classroom has been associated with an array of benefits for youth, including improving motivation, supporting pedagogical innovation, and improving interactivity in the classroom [18,19]. Furthermore, it is arguably important for students to be provided with opportunities to learn the risks that come along with technology and develop critical skills and strategies to live with mobile phones rather than simply having them banned [7].

1.2. Educator and Student Perspectives

Missing from much of the research and discussion around banning mobile phones at school are the perspectives of those who are the most impacted—the educators and students themselves. For any new policy or law to have acceptance and adherence, the views of those who are teaching and learning in schools daily need to be considered in terms of what is acceptable and feasible.

In France, for example, a total ban at the federal level has been implemented, completely banning mobile phones on school grounds for students in grades 1 through 9; however, teachers were found to be sceptical about how these regulations would be enforced and whether this was the best use of educators' time [20]. In a study by Gao et al. [21], Chinese teachers reported that existing school policies did not effectively limit students' mobile phone use or prevent distractions. An examination of the experiences of eight teachers in Sweden during the implementation of a mobile phone ban found that implementing

and upholding the ban was a more complex and challenging task than initially believed, and that teachers regularly made exceptions to the rules [22].

On the other hand, a study by Alakurt and Yilmaz [23] that examined the perspectives of secondary school teachers in Turkey found that the majority expressed positive opinions about mobile phone bans/restrictions improving student concentration, discipline, and academic success. The views were more positive in schools that had bans or restrictions in place. However, independent of the existence of bans or restrictions, the researchers found a striking lack of education and guidance regarding the effective use of mobile phones in schools [23].

In terms of student perspectives, only a small number of studies have examined the perspectives of students younger than university/college aged. One example is the study by Ott et al. [24], which gathered the perspectives of 19 Swedish secondary school students (aged 16 to 19 years), who identified that mobile phones were both distractions within the classroom as well as tools that could facilitate their schoolwork. In the process of policy development, it is important to understand the perspectives of those who are the most impacted by its implementation. For this reason, in our research, we aimed to understand how youths and educators themselves feel about mobile phone use and regulation at school.

1.3. The Current Research

Data for the current research were collected from schools across Aotearoa/New Zealand. At the time of data collection (September–November 2023), there were no government regulations in place regarding students' use of phones at school or in the classroom. On 29 November 2023, the newly elected prime minister of New Zealand released a 100-day action plan that included banning the use of mobile phones at school [25]. Subsequently, the schools have been given until the end of April 2024 to implement this ban. While this policy is referred to as a "ban", the guidance being provided to schools is that schools can decide for themselves how to apply the policy, which could include students keeping their phones in their lockers or bags for the day, and allow for exemptions in special circumstances, e.g., for health or learning needs [26].

For this reason, it is essential for schools to have empirical evidence upon which to base these regulations. Taking into account the views of educators and students will enable schools to implement policies that are most likely to be accepted and adhered to by students and staff. Our research aims to fill the current gaps in the literature regarding students' and educators' perspectives on mobile phone use at school, with implications for educational policy both in New Zealand and internationally. As a part of this analysis, we focus on understanding the impacts of student phone use at school. Given the recency with which student phone use at school has become an issue, it is imperative to understand the impacts of this use on student learning and well-being.

The current research examines mobile phone use within primary through secondary schools in New Zealand using a mixed-methods approach. While there is much discussion and many opinions from policymakers and researchers both in New Zealand and globally surrounding the pathway forward for student mobile phone policy and practice, we wanted to understand the perspectives of those who are the most impacted by student phone use and any policy changes: students themselves and school staff. Prior to making any national-level changes to policy or law, it is critical to understand what students and educators think is the best way forward. Our specific research questions were as follows:

RQ1: What proportion of schools have regulations in place for student mobile phone use, prior to national-level policy changes?

RQ2: Are educators and students in favour of school regulations for student phone use, and what rationale do they provide in favour of or against regulations?

RQ3: What specific types of regulations do educators and students think schools should implement regarding student phone use?

The findings of our research provide insights that are relevant to the development of educational policies around students' mobile phone use at school and contribute to a broader understanding of the impacts of mobile phone use at school on child and youth achievement and well-being.

2. Materials and Methods

2.1. Research Design

To answer our research questions, we used a mixed-methods, cross-sectional survey design with descriptive analyses of both qualitative and quantitative data. The mixed-methods approach was selected in order to gain a more complete picture of educators' and students' perspectives and to strengthen our ability to draw conclusions. Participants were recruited from across New Zealand schools, targeting schools for youth aged 5- through 18 years of age.

2.2. Participants

Participants in this research included 217 educators and 332 students from schools across New Zealand. Educators came from 89 different schools, largely representing secondary schools (see Table 1). The sample of educators was made up of 68.7% teachers, 6.5% principals, and 24.8% other, which included librarians, guidance counsellors, teacher aides/assistants, and specialists such as learning support coordinators and speech-language therapists. Educator age was well distributed, with roughly a quarter of participants falling into each of the following categories: 30–39 years of age, 40–49 years of age, and 50–59 years of age. There were 7% of participants who were younger than 30 years of age and 14% of participants who were over 60 years of age. Educators were spread across 14 of New Zealand's 16 Regional Council areas, with the largest numbers from Canterbury (25.3%), Nelson (16.6%), and Waikato (11.1%).

Table 1. Demographic characteristics of educators and students.

Sample Characteristics	Educators	Students
Gender		
Female	78.6%	64.2%
Male	21.0%	33.4%
Another gender	0.5%	1.5%
Ethnicity [1]		
NZ European	79.3%	65.7%
Māori	7.4%	13.0%
Pacific People	3.7%	3.0%
Asian	3.2%	25.9%
Other	12.4%	9.3%
Socioeconomic Deprivation [2]		
Range	2–10	3–10 [3]
Mean (SD)	6.59 (1.81)	6.88 (1.54) [3]
School Type		
Primary	9.2%	6.4%
Intermediate	10.1%	19.7%
Secondary	74.2%	70.0%
Other (not specified)	6.5%	3.9%

[1] Multiple ethic affiliations allowed. [2] Socioeconomic deprivation uses the New Zealand Deprivation Index (NZDep [27]; 1 = lowest deprivation, 10 = highest deprivation). [3] Only calculated for students who reported names of their schools (n = 242).

Students ranged in age from 7 years to 18 years of age (M = 13.9 years, SD = 2.0). One-quarter of students (n = 90) chose not to report the names of the schools that they attended. The remaining sample of students came from across 43 different schools. Students were spread across 10 Regional Council areas, with the highest numbers from Canterbury

(26.2%), Taranaki (13.0%), and Nelson (9.9%). The demographic characteristics of educators and students are provided in Table 1.

2.3. Procedures

Data for this project were collected using anonymous online surveys through Qualtrics. Everyone who completed the survey was given the option to enter a draw to win one of ten NZD 100 gift cards. Two separate surveys were used: one for educators and one for students (these are described in detail below). Participants were recruited through two methods: (a) email invitations sent to schools and (b) paid social media advertising on Facebook. Due to the online nature of the survey (participants simply clicked on a link to access the survey), we do not know the proportion of respondents that resulted from each recruitment method.

2.3.1. Email Invitation

Study information was sent directly to New Zealand schools using publicly available contact information from educationcounts.govt.nz. At the time of recruitment, there were 1959 primary schools, 116 intermediate schools, and 338 secondary schools with public contact information (email address) available. Stratified random sampling was used to select 100 primary schools, 50 intermediate schools, and 100 secondary schools to invite to participate in the research. Stratification was based on Regional Council area within New Zealand and socioeconomic deprivation level.

2.3.2. Social Media Advertising

Recruitment through paid social media advertising was carried out using a Facebook post on the authors' affiliated university research institute page. A total of NZD 1000 in paid advertising was used over a two-week period. Paid advertising was targeted at parents, with restrictions in place by both Facebook and the approving ethics committee. Thus, recruitment was targeted at the demographic profile of parents of school-age children, with the expectation that parents would pass this information along to their children if they wanted their children to participate. The following specifications were used in demographic targeting for the post on Facebook: (a) living in New Zealand, (b) aged 30–60 years of age, and (c) people matching "Parents with early school-age children (6–8 years)", "Parents with preteens (9–12 years)", or "Parents with teenagers (13–17 years)".

2.4. Online Surveys

Two online surveys were used: one for educators and one for students. At the end of the educator survey, information about the student survey, including the student survey link, was provided for educators to share with their students.

2.4.1. Educator Survey

Following initial demographic questions, educators were presented with 8 multi-choice (quantitative) measures and 3 open-text (qualitative) measures. Multi-choice questions included yes/no questions about the school context (i.e., whether students were allowed to bring phones to school, whether students could use phones in class, and whether the school had rules around student phone use and how well those rules were enforced) and educators' personal opinions (i.e., whether students *should* be allowed to use their phones during the school day, whether schools *should* have rules in place, and whether phones *should* be banned at school).

Additionally, educators used a 5-point Likert scale to rate the impact of student phone use at school. Specifically, educators were instructed as follows: *Please use the rating scales to indicate, in your personal experience and opinion, any impacts of student mobile phone use at school.* Items were the following: focus and attention in class, friendships and social interaction, student self-esteem, student learning, student mental health, bullying, school sense of community, and relationships and communication between school staff and students. Each

item was rated on the following scale: 1 = *Strong Negative Impact*, 2 = *Some Negative Impact*, 3 = *No Impact*, 4 = *Some Positive Impact*, and 5 = *Strong Positive Impact*.

The three open-text questions asked of educators are provided below; there was no limit on the length of response participants could provide:

Q1. *In your personal opinion, should students be allowed to use mobile phones during the school day?* (No, Yes.) *Please explain your answer above.* (Open-text response.)
Q2. *Do you think phones should be banned at school?* (Multi-choice: Definitely Not, Probably Not, Probably Yes, Definitely Yes, I'm Not Sure.) *Please explain your answer above.* (Open-text response.)
Q3. *Please provide any further comments you have on student mobile phone use at school.* (Open-text response.)

2.4.2. Student Survey

Following the initial demographic questions, students were presented with 3 multi-choice (quantitative) measures and 4 open-text (qualitative) measures. The student survey also included additional quantitative measures that were not included in the analyses reported here. The relevant student survey questions were as follows:

Q1. *Does your school have rules about using phones?* (Multi-choice: No, Yes, I don't know.)
Q2. *What are your school's rules about using phones?* (Open-text response.)
Q3. *Do you think schools should have rules about students using phones?* (Multi-choice: No, Yes.)
Q4. *Why do you think schools should/shouldn't have rules about students using phones?*
Q5. *What do you think the rules should be?* (Open-text response.)
Q6. *Do you think phones should be banned (not allowed)?* (Multi-choice: Definitely Not, Probably Not, Probably Yes, Definitely Yes, I'm Not Sure.)
Q7. *Is there anything else you want to tell us about students using phones at your school?* (Open-text response.)

Ethical approval for the procedures used in this study was granted by the University of Canterbury Human Ethics Committee (HREC 2023/79). Funding was provided by the Child Well-being Research Institute.

2.5. Data Analysis

2.5.1. Qualitative Analysis

An analysis of all open-text responses was conducted by utilizing a thematic analysis approach using NVivo [28] software (version 14) for coding. Our thematic analysis approach was based on a positivist values framework, where thematic categories were inductively generated from a more objective and realist/essentialist epistemological stance than other forms of thematic analysis [29]. This type of systematic approach to qualitative analysis lends itself well to a mixed-methods research design. We used a specific type of codebook thematic analysis called the framework method [30,31]. Using the framework method, the first two authors worked collaboratively through the stages of familiarisation, coding, developing an analytical framework, and application of the analytical framework. NVivo was then utilized to chart and interpret the data. We analysed our dataset as a whole, applying the same analytical framework and codes across the educator data and the student data.

Specifically, we first read and then re-read each response to familiarise ourselves with the full dataset. Initial notes and impressions were recorded. The first author then used 50% of the dataset to develop an initial set of codes, which were then organised into a larger analytical framework. Three overarching categories, relevant to our research questions, were identified. These were as follows: *Reasons for having rules*, *Reasons against having rules*, and *What the rules should be*. The initial set of codes was categorised within this framework.

Next, the second author undertook in-depth coding of the full dataset, expanding and adjusting the initial set of codes as required. Labelling and descriptions of codes were determined jointly by the first and second authors, and discussion was undertaken to resolve any segments of text that presented as ambiguous as to the correct coding. Coding

was undertaken by assigning relevant segments of text to appropriate codes within NVivo. The final set of codes and descriptors, along with relevant examples, is provided in Table 2.

Table 2. Analytical codebook for qualitative data.

Organising Category	Code	Description	Examples
Reasons for having rules	Learning	Distracts students from their learning and disruptive to the classroom	*"It's distracting from studying in the classroom." "Kids would use the phones over the day when they are meant to be doing school work." "The difference in class engagement is huge by not having the distraction."*
	Safety	To protect students from bullying, digital harm or age-inappropriate content	*"It would provoke more people to get addicted to social media." "Because kids could use their phone inappropriately and put up pictures of people online that were not consented."*
	Regulation	To promote self-regulation/appropriate use of devices	*"So students aren't on them all the time." "To limit the amount of time on them." "Kids will learn to leave their phone and not need it everywhere they go."*
	Social interaction	Damaging to face-to-face interactions	*"It stops people from talking to each other in break time." "Phones promote diminished social activity."*
	Equality	Because not all students have them	*"Because some people might not have them so it wouldn't be fair." "Some people feel left out when other students use their phones."*
	Physical and mental health	Negative impact on health, both physical and mental	*"You wouldn't get the sunlight or exercise you need." "Often linked to a decrease in their well-being."*
	Insurance	Some students might steal or break other students' phones	*"Good phones could get stolen or broken." "They are a source of theft and take admin time when lost, misplaced and stolen."*
	Not needed	They have alternative options, including other digital devices for learning and other means of contact	*"They are not needed for educational purposes: we provide other devices for e-learning." "There is no purpose for phones in primary school setting, children should just be children."*
Reasons against having rules	Contact with parents and emergencies	Might need in case of emergency or need to contact parent/after school activities/work	*"We don't know if someone is calling us or what because our phones are not with us." "They need to be able to contact their friends or "safe" person should something go wrong during their day."*
	Educational	Used for learning in class	*"Because some subjects require the use of cellphones." "To keep students engaged in learning so they better from it." "Some students are not good at English and sometimes need to use mobile phones to help learn."*
	Autonomy and self-regulation	Students need to learn the skills to self-manage phone use	*"School is a good place to support students to develop skills to manage their use." "It's on the students. Learn to self-manage."*
	Property	It is the students' personal property	*"Because it's our property."*
	Enjoyment	Phones are fun and enjoyable	*"It's fun to check your phone or play games at break times." "It would just be fun to be able to go on our phones at break."*

Table 2. *Cont.*

Organising Category	Code	Description	Examples
Reasons against having rules	Friendships	Phones help connect people	*"It's also a good way for friends to connect and also to form friendships with people in school."* *"It is a very large part of their social network."*
	Resistance	Pushback/resistance from parents and students	*"Yes, but parent community would push back. Schools that have banned phones in and out of class are still experiencing issues."* *"I think there shouldn't be rules because it just creates rule breakers and the students become all sneaky."*
	Logistics	Logistics of implementing a ban or rules	*"Banning phones creates a logistical nightmare for educators."* *"Very difficult to enforce and a burden on staff to do this."*
What the rules should be	Locked away	Locked away for whole school day either by teacher or by student	*"No phones in class or at break. Phones secured by teachers all day."* *"Give phone to teacher in the morning and get it back at the end of day. No phones to be used during school hours."*
	Allotted times	Allowed at specific times, e.g., lunch or breaks	*"Not during class time but lunch ok."* *"No phones out during class unless teacher gives permission, phones are allowed at breaks but only if being used responsibly."*
	Purposeful	Allowed if using for schoolwork or specific purpose (e.g., music)	*"No phones during class unless to listen to music."* *"No phones in class unless it's used for schoolwork."*
	No rules	There should not be any rules for phones in schools	*"Up to the child to decide."* *"There should not be rules."*
	Age dependant	Rules should depend on age	*"I think primary and intermediate kids don't need phones at school, but high schoolers should be allowed them."* *"There should be explicit learning around the devices and increasing trust as they get older."*
	Specific usage rules	Rules around how phones can be used, such as no social media, no texting or games, no bullying	*"Block social media on school internet."* *"No texting friends in class and at school. No playing on phones."* *"As long as you're not recording fights. If you are found to be taking a video of a fight then you get a punishment of some sort."* *"No photos or videos to be taken during the day."*
	Phones banned	Total ban of phones in school	*"Not allowed phones at all at school."* *"Phones should be banned."*
	Contact with parents or emergencies	Can only use in emergency or to contact parents, work, etc.	*"Keep it in your bag for an emergency."*

Next, framework matrices were created separately for each overarching category. Framework matrices can be created within NVivo to structure the data into spreadsheet form, with participants as the rows and codes as the columns. The matrices can then be exported into Excel, allowing for the tabulation of the occurrence of codes and the exploration of themes across the sample, e.g., [32]. We first examined the distributional proportion of codes across our coding categories to understand the relative frequency with which each code occurred in the responses of educators and students. We also identified

the common themes across participants' responses through an examination of our matrices and a comparison between the responses of educators and students.

2.5.2. Quantitative Analysis

An analysis of quantitative data was undertaken using IBM SPSS Statistics (Version 29). Our approach to the analysis was descriptive, presenting the frequencies of each response category.

3. Results and Analyses

3.1. Existing Rules

We first examined the rules that were currently in place at the participants' schools. To ensure that our results were not biased by the number of educators responding from each school, we completed this analysis at a school level—including one data point for each of the 89 schools with at least one educator response. There was a small amount of inconsistency in the responses among educators from the same school, so the predominant response for each school was selected for the three questions on whether the school had rules about mobile phone use, how well the rules are enforced, and whether students were allowed to bring phones to school with them. Across the 89 schools in the sample, students were allowed to bring their phones to school at 91% of the schools, and 89% of schools had rules about student phone use. In terms of how well these rules were enforced, the majority of schools had rules that were usually (35.8%) or always (22.9%) enforced. Only a small number of schools had rules that were not at all (0.6%) or rarely (7.8%) enforced.

When examining the responses for whether students could bring phones to class with them, there were substantial inconsistencies among educators at the same school, perhaps reflecting that this was regulated at the class/teacher level rather than at the school level. For this reason, we analysed the results at the educator level (n = 217). More than half of the educators (60.5%) reported that phones were not allowed in class, while 39.5% of educators reported that phones were allowed in class.

3.2. Reasons for and against Using Mobile Phones at School

When asked for their personal opinions (independent of the existing rules at their schools), 70.4% of educators thought that students should not be allowed to use their phones during the school day, and 55.9% thought that their schools should have stricter rules on student phone use (see Figure 1).

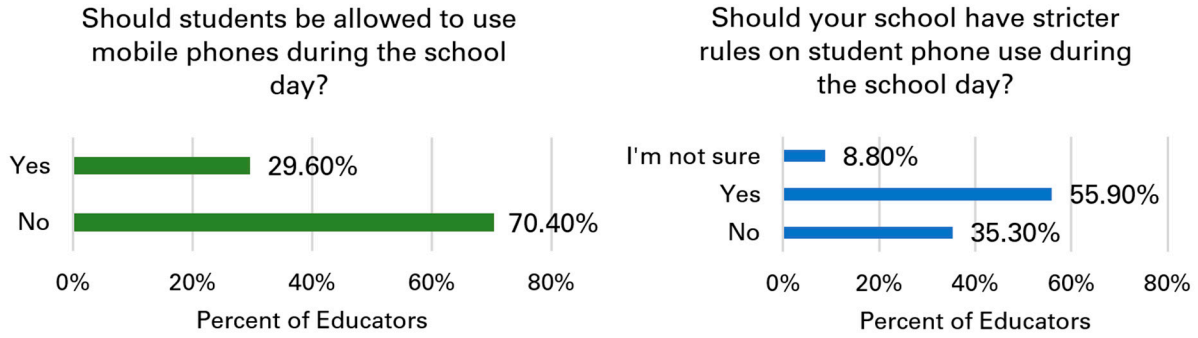

Figure 1. Educators' opinions (n = 217) on student phone use during the school day and rule strictness.

Next, we examined the open-ended responses of both the educators and students to understand their perspectives on why they were or were not in favour of there being mobile phone use regulations at school. Across the full sample, there were 410 references coded to our first two organising categories of *Reasons for having rules* and *Reasons against having rules*. The distribution of references across codes is provided in Table 3, with an indication of the relative frequency of each coding category with the responses of educators and students.

Table 3. Distribution of references coded as reasons for and against school regulations for student phone use.

Organising Category	Code	Educators	Students	Total Sample
Reasons for having rules	Learning	19.27%	40.00%	26.10%
	Safety	13.45%	11.85%	12.93%
	Regulation	6.55%	11.11%	8.05%
	Social interaction	6.18%	9.63%	7.32%
	Equality	4.36%	5.19%	4.63%
	Physical and mental health	2.91%	2.22%	2.68%
	Insurance	0.73%	2.22%	1.22%
	Not needed	13.45%	0.00%	9.02%
Reasons against having rules	Contact with parents and emergencies	10.55%	5.19%	8.78%
	Educational	8.00%	1.48%	5.85%
	Autonomy and self-regulation	6.55%	4.44%	5.85%
	Property	0.00%	1.48%	0.49%
	Enjoyment	0.00%	3.70%	1.22%
	Friendships	1.09%	0.74%	0.98%
	Resistance	4.00%	0.74%	2.93%
	Logistics	2.91%	0.00%	1.95%

To understand educators' and students' perspectives of why regulations around student phone use are or are not needed, we identified themes across our first two organising categories (*Reasons for having rules* and *Reasons against having rules*). Below, we describe the four key themes that were drawn from this analysis.

3.2.1. Impacts on Learning

The most common theme that was evident within both participant groups was the impact of phones on learning, with a greater focus on the harmful effects on learning than the positive effects. The students often mentioned how much of a distraction phones are in the classroom, preventing themselves and other students from concentrating on their lessons, as seen in the following responses: "*Because phones are a huge distraction. I constantly see people using phones during class wasting time. It severely impacts your learning*" (male student, age 15); "*I think schools should have rules around phone usage because students should not be distracted by phones during class, and by having rules it makes it easier for teachers to control this and make sure students are getting the best education they can*" (female student, age 16). The educators also discussed impacts on student learning, with a particular focus on students' engagement with lessons: "*The difference in class engagement is huge by not having the distraction*" (female, secondary-level teacher); "*Since we have made a full change to no phones I have noticed significantly positive outcomes, both as a Dean and Classroom teacher. The girls agree that the classroom focus is better*" (female, secondary-level teacher). In contrast, other participants discussed the potential benefits of using phones as educational tools. The discussion of phones as beneficial tools for learning occurred overwhelmingly among educators, as seen in the following responses: "*Phones can be amazing tools for research, often our students feel more at ease using their phones for research than using a keyboard equipped device. Sometimes they are even more comfortable writing using a phone*" (male, secondary-level teacher); "*For the subject area I teach, phones are very useful in the classroom. The set up for managing phones is time-consuming but worth the effort*" (female, secondary-level teacher); "*Some classes require phones like photography or videography. So I don't think phones should be banned. Just more restrictions*" (male student, age 15).

3.2.2. Keeping Students Safe

After impacts on learning, the next most common theme observed was safety. The participants were concerned about inappropriate phone use, such as photos and videos

being taken at school and shared, cyberbullying, and social media-related issues. While these are concerns related to mobile phone use by youth in general, and not necessarily specific to phone use at school (i.e., banning phones at school is not going to eradicate these issues), many participants made the case that phones have the following effects:

(a) Phones exacerbate existing issues at school, as is the case with bullying, as some participants stated: "*I think it is great for schools to have rules about phones. Kids get bullied a lot in general, but having phones in the mix could just make it worse*" (female student, age 13); "*There have been incidents of students filming and photographing bullying incidents which makes it traumatizing for the victims*" (female teacher, level not specified).

(b) Phones greatly increase opportunities for recording and sharing inappropriate or unconsented content while in close proximity of other students who they might not have contact with outside of school, as seen in the following statements: "*I also feel that mobile phone use during morning teas and lunchtimes are a major issue. Students videoing things they shouldn't be, sharing things online etc.*" (female, secondary-level teacher); "*Kids take video of other kids without their permission*" (male student, age 12).

On the other hand, a smaller number of participants pointed out that phones can be helpful for students when they need to contact or be contacted by their parents or their employers about after school activities and in times of illness or emergencies: "*Many parents feel they help ensure child safety to and from school*" (male principal, intermediate level); "*Safety and access to students. Schools are too big for staff to locate students to pass on a message from parents during the day*" (female librarian, secondary level). Multiple participants referred to past large-scale emergency events: "*Those of us that have lived and worked through the Canterbury earthquakes and the terror attack at the mosque will understand that cellphones were a vital link to find out about family/friends*" (female teacher, primary level). Personal student safety was the strongest argument in favour of there being no regulations on student phone use and was particularly prevalent amongst educators who thought it made their job easier if students could contact their parents directly (rather than using the teacher/school as an intermediary) in times of need. To counter this point, our coding category of "not needed" included a large proportion of educator responses that offered alternative options for students making contact with parents or employers, such as through the school office/reception, or through devices like laptops.

3.2.3. Internal vs. External Regulation of Use

A theme that was more evenly spread between arguments for and against school mobile phone rules regarded the regulation of student phone use. On one side, some argued that the regulation of student phone use needs to be externally regulated for students' own good. These educators and students felt that self-management for appropriate phone use was difficult for students, and having external regulations in place would prevent phone addiction and ensure that students were not on their phones all day long: "*If schools do not have rules, students will do whatever they want, which is very bad*" (female student, age 15); "*They find self-management very difficult*" (female teacher, secondary level). There was a sense that this type of external regulation would help students to develop good phone habits that would have beneficial long-term effects, as one student stated that "*Kids will learn to leave their phone and not need it everywhere they go*" (female student, age 13). On the other hand, some participants discussed the importance of encouraging self-regulation by providing students with the skills they need to self-manage their phone use in the absence of external regulations. Given the pervasiveness of digital devices in day-to-day life for most of society, we need to ensure that students can be autonomous and become equipped with the self-control to manage their own behaviours. This was one of the more common arguments in favour of there being no regulation of student phone use at school, as seen in the following statements: "*It is a part of their everyday life. If taught the benefits of using a phone for learning and safe mobile use, we are developing an important life skill*" (female teacher, intermediate level); "*I think students need to learn how to manage themselves and their use of digital devices. When they leave school they are expected to manage their use of devices at work or*

future study. I think school is a good place to support students to develop skills to manage their use" (female teacher, secondary level).

3.2.4. Social Relationships

The impact of phones on friendships and social interactions was discussed by a smaller number of participants, but it was the fourth and final theme identified in the dataset. In this case, the balance of the weight was largely in favour of there being rules and regulations around student phone use. Educators and students equally agreed that when students used their phones at school, they spent less time engaging in face-to-face interactions, with adverse consequences on their well-being: "*Young people too often default to their phones for entertainment which stops them communicating with others and spending time doing other things*" (female teacher, secondary level); "*They reduce social connection and I believe contribute to some of the negative relationship and wellbeing issues we are seeing grow*" (female teacher, secondary level); "*I recognise now that it made me actually have to socialise with my peers, and I would say that I had many more meaningful relationships and connections with others there then I do now*" (female student, age 15). Only a small number of participants thought that student phone use was beneficial for student relationships, as one student stated "*I think it's also a good way for friends to connect and also to form friendships with people in school. Like video games can help to bring people together on a similar hobby*" (male student, age 15).

3.2.5. Rating Scales

After answering the open-ended questions, the educators were also asked about the impact of mobile phones across several domains using rating scales. This measure was provided after the completion of the open-ended questions to avoid influencing the earlier responses. The educators' responses to the Likert scale items regarding their perceptions of the impact of student mobile phone use at school are depicted in Figure 2. Across all domains, a larger proportion of educators perceived there to be more negative impacts than positive ones. The strongest negative impacts were reported for bullying and focus and attention in class. The positive impacts were most likely to be reported for a school sense of community and relationships and communication between school staff and students, although positive impacts were still reported by only a minority of educators in these domains.

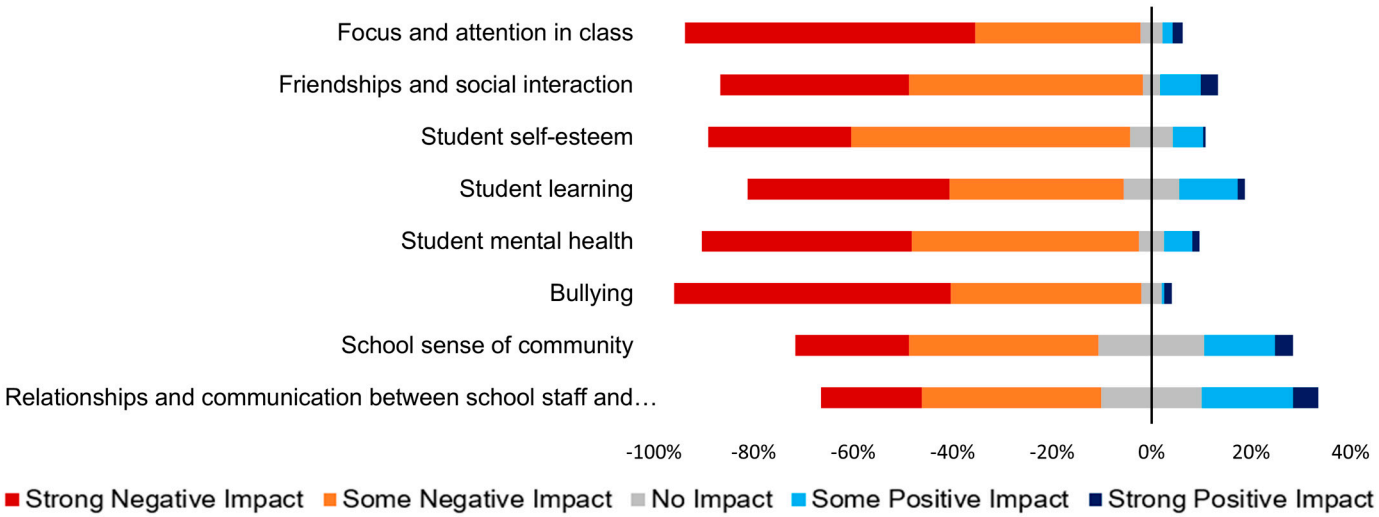

Figure 2. Educator perceptions of impact of student mobile phone use at school.

3.3. What Rules Should Schools Put in Place?

A particular focus of our research was understanding educators' and students' perceptions of what rules schools should put in place to regulate mobile phone use. To answer this question, we first asked both educators and students whether mobile phones should

be banned. The distribution of responses is provided in Figure 3. The educators were more in favour of banning than the students, with 46.1% of students responding "Definitely not" and 32.8% of educators responding "Definitely yes".

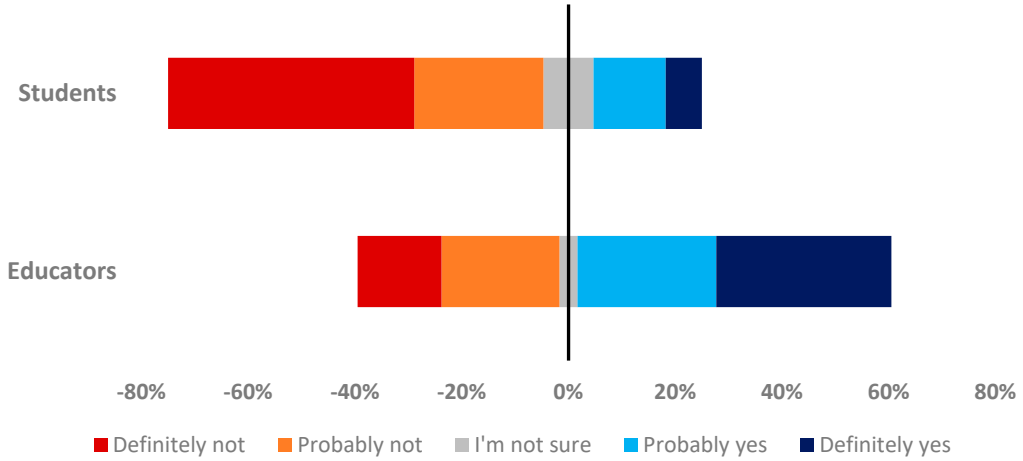

Figure 3. Students' and educators' perspectives on whether schools should ban mobile phone use.

Next, we analysed the open-ended responses coded under our third organising category (*What the rules should be*). We found that, overwhelmingly, both the educators and students were in favour of schools having rules in place for student phone use. Table 4 provides a breakdown of the types of regulations that the educators and students proposed and the frequency with which each occurred in the dataset across the 213 references coded within the *What the rules should be* category.

Table 4. Distribution of references coded as participant perceptions of what regulations schools need.

Organising Category	Code	Educators	Students	Total Sample
What the rules should be	Locked away	21.84%	30.16%	26.76%
	Allotted times	11.49%	25.40%	19.72%
	Purposeful	13.79%	13.49%	13.62%
	No rules	24.14%	6.35%	13.62%
	Age dependant	16.09%	4.76%	9.39%
	Specific usage rules	5.75%	11.11%	8.92%
	Phones banned	4.60%	7.14%	6.10%
	Contact with parents and emergencies	2.30%	1.59%	1.88%

The two most common types of regulations that both participant groups thought schools should put in place were (1) having phones locked away for the school day and (2) having allotted times of the day when phones could be used (such as during break times but not during class). Those who suggested that phones should be locked away for the entirety of the school day provided various suggestions for implementing this rule, including use of lockboxes in the classroom, handing phones in to the teacher each morning, or turning phones off and putting them away in the students' school bags, as seen in the following responses: "*No using phones in school times and schools should put children's phone in a box until the end of the day so it won't get stolen,*" (male student, age 11); "*All phones that are brought to school are to be handed in to the 'phone box' each classroom owns, as soon as they arrive at school, and they receive them back when they are leaving school*" (female teacher, intermediate level). When combining the participants who either thought phones should be locked away for the school day or only used during break/lunch times, there seemed to be a strong consensus that phones should not be allowed during class time.

There was some discussion, however, of purposeful use, where phones are only allowed to be used in class if there is a specific educational need or purpose that teachers have approved, "*Don't just use it because you want to, like you have to have a specific reason to use it in class*" (male student, age 15); "*During class, with permission—sometimes e.g., when a computer is absolutely not available. Today students used their phones to deliver their speeches*" (female teacher, secondary level). Fewer participants suggested a complete ban, whereby no phones are allowed at school at all. There was a recognition by some participants that the rules should be age-dependent, with stricter rules for younger students and more freedom for self-management in older students.

4. Discussion

In this research study, we examined educators' and students' perspectives on students' mobile phone use in New Zealand schools. We used a diverse sample of participants from across the country to gain an understanding of, at a national level, what is currently happening within schools and what regulations educators and students believe need to be put in place. Our results indicate that, at the time of data collection, the vast majority of schools allowed students to bring their phones to school with them, and nearly all of these schools had rules in place for student phone use. However, more than half of the educators believed that their schools' rules should be stricter.

The responses that the participants provided to our open-ended questions epitomised the existing strain between the benefits and opportunities provided by mobile phones and the potentially harmful consequences of these devices. While we observed a larger focus on the harmful impacts, for almost every type of argument against phone use at school, there was a complementary argument for why phones are beneficial in that regard; for example, *phones negatively impact learning* versus *phones positively impact learning*, or *phones are a safety risk* versus *phones keep kids safe*. The wide-reaching impacts of mobile phones (and other digital technologies) in terms of both harms and benefits make it difficult to work in absolutes. We cannot expect to be able to conclude that, for example, *phones should be completely banned* or *kids should have phones with them at all times*. The solution will need to be somewhere in the middle, finding the right balance between the two extremes.

We believe there is a need to move away from the terminology of "banning" when, in fact, what policymakers and educators might be referring to is a "ban" on phones in the classroom. The idea of a total ban leads to immediate resistance from students, concerning what sounds like authoritarian control. If policies are framed more as "regulations" or "rules", students may be more likely to be on board, given the perspectives that we observed in our sample. When asked outright about banning mobile phones at school, most students were against a ban. However, when asked what they thought the rules should be, only a minority of students thought there should be no rules and the majority of students suggested that phones should not be allowed in the classroom. This dissonance suggests that while students are not in favour of complete bans, many welcome the concept of greater regulation for reasons largely related to learning and safety. In fact, in their qualitative responses, the students were more strongly in favour of stricter rules than the sample of educators within this study, who often held somewhat conflicting opinions. Thus, students tend to see the value in locking phones away for the school day but are resistant to the idea of a ban. The terminology of "banning" also connotes a lack of exceptions and flexibility, whereas our participants pointed out various ways in which phones might be used during the school day together with permission from their teachers. Indeed, phone bans implemented elsewhere have found student resistance to the ban to be a challenge, such as in Sweden [22], highlighting the importance of gaining students' acceptance of planned policies.

Participants being in favour of keeping phones out of classrooms is consistent with the strong theme of phones as distractions and disruptions within the classroom learning environment that was observed in the participants' responses. Educators and students alike reported problems with engagement, attention, and learning resulting from students

using phones in class, which is consistent with previous research in this area [23,24]. The need for students to focus on their schoolwork and reach their academic potential should be balanced against the need for students to develop digital self-management skills. Burnell [33] found that adolescents who struggle with self-control are more likely to report that digital technology is impairing their daily lives; thus, students who may already be struggling with attention and control in the classroom may be those who are the most impacted by a lack of regulation for mobile phones.

By considering the perspectives from our sample as a whole, a synthesis can be reached by including aspects of both internally and externally regulated phone use. It is important to both provide some level of regulation and provide students with opportunities to develop the skills to self-manage, perhaps through allotted times that mobile phones can be used or through purposeful phone use during the school day. As pointed out by a teacher who was quoted earlier, school is an important context to help students develop the skills they need to manage their device usage, especially for children and youth who may be exposed to problematic phone or device usage at home. The school-level regulation of phone use can help students develop good habits for the future and learn to live without their phones for extended periods of time. It would further support students to increase focus on their studies while providing them with education and practical experience for the safe and appropriate use of mobile phones. Schools could also support students to critically evaluate online content from their mobile phones to promote better quality of information that is accessed and encourage safer digital practices.

4.1. Strengths and Limitations

The strengths of our research lie in our use of a diverse sample of educators and students from across New Zealand schools and our use of a mixed-methods approach. Through the collection of qualitative perspectives, we were able to obtain a more nuanced understanding of educators' and students' perceptions than we would have through a purely quantitative analysis. For example, if we only asked whether the students were in favour of banning, we would not have been able to obtain the more in-depth responses that showed us that students perceive there to be negative impacts of phone use at school and that they are, in fact, in favour of quite strict regulations.

The limitations of our research include the use of online surveys, which do not allow for further follow-up or prompting of participant responses. However, we expect that the anonymous nature of the survey allowed the participants to speak honestly. It may also be the case that our sample is biased towards including those with strong opinions on this topic, as individuals may be more motivated to participate in a survey on a topic they feel strongly about, and thus, our sample may not be representative of all educators and students across New Zealand. Both of our student and educator samples also contained more female than male participants, which could impact our findings.

4.2. Recommendations

Based on our synthesis of perspectives from educators and students around New Zealand, we arrived at the following recommendations:

1. Policies related to student phone use should move away from the rhetoric of a complete "ban" to the regulation of mobile phone use during the school day.
2. All schools should implement transparent and enforceable regulations on student phone use during the school day as follows:
    (a) Students should be allowed to bring their phones to school but have them locked away during the school day.
    (b) The use of phones for specific educational purposes or at allotted times is allowed at the teachers' discretion.
3. Schools should provide contexts for students to develop digital device self-management skills, learn about the risks and opportunities of mobile phones, and develop the ability to critically evaluate online content.

4.3. Conclusions

Smartphones are an unavoidable part of modern life. While some research suggests that they are incongruous with educational success and well-being for children and youth, other research advocates for the beneficial role they can play at school. Within the current literature, however, little attention has been given to the views of children and youth with regard to the use of mobile phones at school. This research provided insight into the views of both educators and students, regarding the access, regulation, and use of mobile phones at school. On balance, both the educators and students were in favour of the school-level regulation of student phone use, but they were less in favour of a total ban approach. Most participants thought that students should not be allowed to have phones during class time, with rationale that centred around student learning and safety. Taken together, this research provides guidance for schools and governments that are considering the use of mobile phone policies in schools and indicates that an 'all-or-nothing' approach may not be the best. The findings of our research provide insights that are relevant to the development of educational policies for students' mobile phone use at school and contribute to a broader understanding of the impacts of mobile phone use at school on child and youth achievement and well-being.

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Informed Consent Statement: Informed consent was obtained from all adult participants involved in the study. Parental consent and participant assent was obtained for all participants aged 18 and under.

Data Availability Statement: The data presented in this study are not publicly available, as participants did not agree to this at the time of participation.

Conflicts of Interest: The authors declare no conflict of interest.

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