



UNDERSTANDING THE EFFECT OF SMARTPHONE USAGE IN THE HIGHER SECONDARY CLASSROOM THROUGH CONSTRUCTIVIST GROUNDED THEORY

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Abstract: *The present qualitative ground theory study aims to examine how Indian school teachers teaching higher secondary feel about the usage of smartphones in their classrooms and to explore if the smartphone can be used specifically in their respective subjects.*

Keeping in mind the National Education Policy (NEP 2020) and its inclination towards integration of technology, the researcher decided to investigate the perceptions of 5 higher secondary teachers private school teachers in the South Mumbai area.

The result of this study will provide insights into the attitudes of Indian higher secondary school teachers towards smartphone usage in their classroom and a clear understanding of the effectiveness of smartphones in enhancing the teaching-learning experience.

Keywords: *usage of smartphones, integration of technology, effectiveness of smartphones, teaching-learning experience.*

Introduction:

The usage of smartphones has a significant impact in everyone's lives today. Be it connecting with loved ones, using to do lists as personal reminders, reading views on social media sites, gaming with friends or strangers, indulging in passions like photography and videography the smartphone has indeed left an indelible mark even on our normal routine lives

Specifically in the lives of students today, smartphones have a massive impact. Students use educational apps right from a young age to learn colouring to numeracy and as they grow up to learning languages, coding, researching work and even finding textbook solutions.

In the school scenario, smartphones have numerous implications especially with the NEP (National Educational Policy 2020) focusing on technology integration and promoting responsible student digital citizenship. NEP has been groundbreaking and was the need of the hour even more since Covid 2020 hit the world. NEP with its emphasis on technology integration is trying to build an inclusive education system which is focused on eLearning, online assignments, virtual labs and simulations, digital infrastructure like softboards, computer testing during examinations etc.

NEP 2020 recognises the importance of: (NEP 2020, CIET Behera)

- Leveraging the advantages of technology while acknowledging the potential risks and dangers.
- Carefully designed and appropriately scaled pilot studies to determine the benefits of digital/ online education.
- Optimising and expanding the existing digital platforms and ongoing ICT-based educational initiatives to meet the current needs and future challenges.
- Using technology for online and digital education adequately to address concerns of equity.

To implement this, teachers today need to be aware of the opportunities and policies that are made available in the education sector and they must also understand the impact that time, planning and their pace with technology can have on students. With this intent the researcher attempts to explore higher secondary teachers' perception of the effects of smartphone usage in the classroom through a constructivist grounded theory approach.

Research Questions:

- What is the perspective of higher secondary teachers on allowing students to use smartphones in the classroom for educational purposes?
- How do the teachers see it benefiting their learning experience?
- Have the teachers ever incorporated smartphones in their classroom for teaching purposes? What was the impact of it?
- As NEP emphasizes on technology integration, do teachers think smartphones can be integrated into their subject curriculum to improve content delivery and subject engagement?
- What considerations should teachers keep in mind to ensure equitable access to smartphones for all students, especially those from diverse socioeconomic backgrounds?

Research Design:

For the present study, constructivist grounded theory design is used. It helped the researcher to study how higher secondary teachers perceive the effects of smartphone usage in the classroom by constantly comparing data with data and finally data with the theory until it reaches the saturation point and emerges with the theory.

Sample and Sampling Technique:

Convenient sampling technique is involved, higher secondary teachers from South Mumbai were interviewed.

Table 1: Participants demographic information

SUBJECT TAUGHT	AGE OF THE TEACHER	GRADES TAUGHT
COMPUTER SCIENCE	40-50	(9 th -12 th Std)
MATHEMATICS	25-35	(9 th -12 th Std)
COMMERCE AND ECONOMICS	35-45	(9 th -12 th Std)
HISTORY	25-35	(9 th -12 th Std)
ART APPLICATION	40-50	(9 th -12 th Std)

Tools:

To collect the data semi structured interview was prepared. It focused on questions based on how participants view and address the topic of smartphone usage in their classroom.

Data Collection:

Firstly, the researcher reviewed several academic papers, post this a set of questions were formulated to help the researcher interview the participants.

Secondly, the target sample was sought and face-to-face interviews were conducted and voice recorded.

Data collection commenced only after the subject teachers were given assurance of keeping their names anonymous.

Data Analysis:

Analysis involved various levels. First each of the participants was interviewed and audio recorded. Secondly, the audio files were transcribed verbatim including expressions. The audio and transcripts were rechecked to avoid any misinterpretation of data. The interviews were conducted in English and the duration of each interview ranged between 15-25 minutes.

The collected data was then analysed. In stage one, in the initial open coding stage, data was explored and codes identified. In stage two, focused coding was done wherein categories evolved through constantly comparing data with data and data with codes as the goal was to construct grounded theory.

Findings:

The themes emerging out of the data analysis have been linked with the research questions and have been elaborated in the following paragraphs.

RQ1- What is the perspective of higher secondary teachers on allowing students to use smartphones in the classroom for educational purposes?

This research question focuses on the theme '*Varied Perspectives*'. It has emerged out of sub-categories such as participants understanding the applicability of smartphone usage within the classroom context. The analysis indicates that most participants answered the question very confidently without any reluctance, showcasing diverse opinions.

For example- The Computer Science Teacher's positive approach on "*Introducing technological gadgets in the classroom is a nice concept (BYOD-Bring Your Own Device)*" focuses on **active engagement, personalised as well as collaborative learning fostering a sense of community in the class as well as encouraging a sense of ownership of learning.**

The History Subject Teacher highlights **real world applications and acceptance of different learning styles.** "*Allowing students to use cell phones in the classroom for educational purposes can be very beneficial for them, but it provides access to a lot of information, like education apps can be used... a lot of online resources.*"

The Art Application teacher emphasizes **visual learning with a special focus on personal expression** in the artistic learning process: "*So where most of the things is related to the visuals. And when we are talking about the art, at the same time, when we are thinking something, we have some images in mind. But somehow, we can't able to draw that exactly. So that we required the references we required, somehow printed either somehow past previous works, which was done by the artist, either we required some photographic references, which can which mobile phone we're going to be really helpful to us in that situation when it is required.*"

The Mathematics teacher **clearly contrasts to the constructivist principles which wholly encourages integration of technology.** "*I think cell phones should be prohibited in the classroom because there are a lot of social media websites, which students can intervene when the classes are on, or else if we are allowing cell phones, then they should be banned on such social like websites like WhatsApp, Facebook, etc.*"

In general, all the teachers understood the question well and stated their opinion. The History, Commerce & Economics, Art as well as the Computer Science teacher have discussed their opinions on smartphone usage in a very positive and optimistic way while the Mathematics teacher has a divergent opinion. Thus, 4 out of 5 teachers have expressed their views positively. While, the Mathematics teacher felt that the smartphone will distract the student and shift the focus from classwork.

The analysis of this research question thus highlights the **richness and diversity of teachers' perspectives** on smartphone usage. The theme 'Varied Perspectives' emphasizes on the coconstruction of knowledge through the diverse viewpoints of the participants.

R2- How do the teachers see it benefiting their learning experience?

This category is made up of two focused codes-Participants *understanding of advantages* and the *potential benefits for their educational journey*.

The Commerce and Economics teacher emphasizes the **access to diverse learning materials and the effective utilization of technology**. *"They will begin to access a lot of material with regards to various authors, various research papers, podcasts, etc., which will be quite handy."* *"If we allow them the use of cell phones, at least they will know how to maximize the returns from it in the limited period of time. And at the same time, give incredible research reports."*

The Mathematics teacher mentions **an enhanced teaching learning experience as well as effective utilization of technology**. *"It will help us to benefit, for example, subjects like mathematics if I want to conduct a quiz. So in that case, if I can provide a link, and the students are able to do the quiz in that particular time"*. *"During COVID, during the online sessions, I have used, I've used one particular app. In that app, you had to insert one particular link, and you have to send a link to the students, and the students were able to solve that particular questionnaire within given time limits. And this helped me in my teaching-learning process"*

The History teacher emphasizes **the access to diverse learning materials**. *"It will help them get more, you know, information. And we can use different kinds of, you know, apps that are available"*. *"It provides access to a lot of information, like education apps can be used... a lot of online resources."*

The Computer Science teacher focuses on **the adaptability to go beyond the textbook and research** *"Provides exposure to various concepts and logics."* *"Useful for research beyond the textbook."*

The Art Application teacher stresses on a **confident and enriching experience** *"Their confidence will be better"*. *"See, it will be always enriching experience when we go to use it in an appropriate manner"*

In general, **the participants emphasized on accessing diverse materials, effective technology utilization, improving the teaching-learning process, boosting confidence, and promoting research beyond traditional resources.**

R3- Have the teachers ever incorporated smartphones in their classroom for teaching purposes? What was the impact of it?

The Commerce and Economics teacher speaks about **the positive effect of incorporating diverse views**. *"The impact was very nice, in fact, because we had a lot of variant varied views, even though everybody was given similar guidelines..."*

The Mathematics teacher specifies **the increase in student effort as well as interest**. *"The impact was the children were more into like they were interested. Yeah, so they, they put a lot of effort; they want to excel in whatever they want to. So if I give a link or a quiz, if I give a link or a quiz, the children put a lot of effort, and they want to excel, they want to show their score up. So, it helps us to retain that attention in the class."*

The History teacher has **not incorporated the usage of smartphones** in the classroom. While the Computer Science teacher mentions that an *event was successful with monitored and restricted technology use*.

The Art Application teacher mentioned that the *confidence and the drawing of the student was much better when they used the smartphone to references*.

Overall, the participants have stressed on the positive and a student-centric impact of technology integration. It also focuses on a balanced usage of technology within the classroom.

R4- As NEP emphasizes on technology integration, do teachers think smartphones can be integrated into their subject curriculum to improve content delivery and subject engagement?

The Commerce and Economics teacher mentions the NEP as in alignment with education and their subject too. *"Yes, I definitely feel as NEP does involve does speak about technological upgradation, and integration into our delivery process."*

The History teacher positively acknowledges the integration of digital technology *"There is always a lot of scope with digital technology, coming in into education."*

The Art and the Mathematics teacher have subject specific acceptance of smartphones to their subject curriculum.

The Computer Science teacher *"Cell phones not suitable due to small screens."*

"Recommends larger devices like tabs or laptops." The Computer Science teacher's concerns about the suitability of cell phones highlights the importance of considering practical usage when integrating technology into the classroom.

Overall, this research question revealed viewpoints on alignment with educational policies, positive perceptions of digital technology, subject-specific considerations, and practical concerns with device suitability.

R5- What considerations should teachers keep in mind to ensure equitable access to smartphones for all students, especially those from diverse socioeconomic backgrounds?

All participants were sensitive to the diverse socio-economic needs and environments of the students. The Computer Science teacher *"Customized tabs at cost-effective prices."* *"Ensuring access for students from different socioeconomic backgrounds"*.

The Mathematics teacher *"A basic cell phone should be told for the students to get, for example, there will be no competition in terms of brands. So, one particular brand should be told to the students so that there is no competition between them."*

The Commerce and Economics teacher *"So when we are using cell phones generally, according to our socio-economic background, normally everybody has one..."* *"But I honestly feel, or we can have certain schools that may have a few laptops or cell phones which can be distributed to the students, maybe with a data plan, etc., can be subsidized from this as a school..."*

The History teacher speaks of adapting teaching strategies based on the unique needs of students. *"I think this is very significant because teachers should consider their diverse socio-economic backgrounds, because everyone may not have access to it."* *"So, we have to give them alternative resources, especially the ones that don't have smartphones"*.

Most participants feel that teaching practices should be shaped based on the context and needs of the learners. This research question also throws light on the fact that teachers are aware of such disparities.

DISCUSSION OF KEY FINDINGS AND EMERGING THEORY:

This study has evolved by tracing the varied perspectives of higher secondary teachers on the usage of smartphones in the classroom.

Overall, the findings of this study state that teachers perceive the usage of smartphones in class as ever evolving and dynamic. The teacher plays a crucial role in integrating the smartphone sensibly in the classroom. The teachers have understood and recognized the benefits of technology integration and also of ensuring equitable access of resources to diverse learners from different socio-economic backgrounds.

The teachers also play an active role in being accepting of change and adapting to new educational policies. This positive approach by teachers in relation to smartphone usage portrays the will power and flexibility to explore new teaching strategies and embracing technology whole heartedly into the classroom.

The teacher's role, through this study, can be seen as transformative in shaping their students and influential in promoting an active-engaging learning environment.

CONCLUSION:

The study presents the views of five higher secondary teachers in understanding and promoting positively smartphone usage in the classroom and at the same time it empowers pre-service and in-service teachers to self-assess their own perspectives in relation to technology integration in the classroom.

Further, it encourages educational technology companies and startups to develop products that can aid educators and learners in the teaching-learning process. Content developers too may consider the integration of technology while developing the curriculum.

Last but not least, school administrators could utilise the findings of this study to integrate technology within set guidelines in their institutions thus their students will stand to profit from such enriching learning sessions.

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