

**ACADEMIC PROCRASTINATION AMONG
PROSPECTIVE TEACHERS IN RELATION TO
SMARTPHONE USAGE**

*Dissertation submitted to N.V.K.S.D. College of Education (Autonomous),
affiliated to Tamilnadu Teachers Education University, Chennai in partial fulfilment
of the requirements for the award of the degree of*

MASTER OF EDUCATION

By

ABISHA R T

Reg. No : 10124MED0601

Under the Guidance and Supervision of

Dr. PRASAD P. S

Assistant Professor in Education



**CENTRE FOR RESEARCH AND DEVELOPMENT
N.V.K.S.D. COLLEGE OF EDUCATION (AUTONOMOUS)
(Re- accredited by NAAC with 'A ++' Grade)
ATTOOR, KANNIYAKUMARI DISTRICT, TAMIL NADU**

MAY 2026

ABISHA R T

M.Ed. Student,

N.V.K.S.D. College of Education (Autonomous) Attoor,

Kanniyakumari District.

DECLARATION

I, **ABISHA R T** (Reg No. 10124MED0601), hereby declare that this dissertation entitled “**ACADEMIC PROCRASTINATION AMONG PROSPECTIVE TEACHERS IN RELATION TO SMARTPHONE USAGE**” submitted by me for the degree of Master of Education is the result of my original and independent research work carried during the academic year 2024 - 26 under the guidance and supervision of Dr. Prasad P S, Assistant Professor in Education, N.V.K.S.D. College of Education, Attoor, Kanniyakumari District. I further declare that this dissertation has not been submitted, either in part or in full, for the award of any degree, diploma, associateship, fellowship or any other similar title to any university or institution.

Place: Attoor

Date

Signature of the Candidate

Dr. PRASAD P. S
Assistant Professor in Education
N.V.K.S.D. College of Education (Autonomous)
Attoor, Kanniyakumari District.

CERTIFICATE

This is to certify that the dissertation entitled “**ACADEMIC PROCRASTINATION AMONG PROSPECTIVE TEACHERS IN RELATION TO SMARTPHONE USAGE**” submitted by **ABISHA R T**, for the award of the Master of Education degree, is an original record of research work carried out by her under my guidance and supervision during the academic year 2024 - 26. It is further certified that this dissertation has not been submitted, either in part or in full, to any other university or institution for the award of any other degree or diploma. It is also certified that the work presented in this dissertation is original and free from any form of duplication.

Place: Attoor

Date:

Signature of the Supervisor

ACKNOWLEDGEMENT

With great pleasure and privilege, I present here with satisfaction of the dissertation entitled Academic Procrastination among prospective teachers in relation to Smartphone Usage. I immeasurably thank God for blessing me with good health and confidence to complete this work

I wholeheartedly express my deep sense of gratitude and indebtedness to my guide, **Dr. Prasad P S, Assistant Professor in Education**, N.V.K.S.D. College of Education, Attoor, for the valuable guidance, constant encouragement and constructive suggestions offered throughout the course of my work.

I extend my sincere thanks to **Dr. S. Sreelatha, Principal**, N.V.K.S.D. College of Education, Attoor, for providing the necessary facilities and support for the successful completion of this research work.

I express my heartfelt thanks to **Dr. K Rajeswari, Professor and Head, Center for Research**, N.V. K. S. D. College of Education, Attoor, for her continuous encouragement, valuable support and for providing the facilities required for the successful completion of this research work.

I would like to express my sincere gratitude to **Dr R.P. Deepa, Assistant Professor in Education**, for her valuable guidance and support throughout my dissertation.

I want to express my heartfelt gratitude to **Dr. P. Sheela**, Librarian, **Mrs. S. Siva Priya** and **Mrs. A. V. Abirami**, Library Assistants of N.V.K.S.D College of Education, Attoor, for their valuable help and encouragement.

I express my sincere gratitude to the principals and prospective teachers of various colleges of education from which the data were collected, and to the librarians

of different libraries for their kind cooperation and assistance in collecting the materials required for this research work.

A heartfelt note of thanks goes to all the faculty members of N.V.K.S.D. College of Education, Attoor, who shared their valuable knowledge, guidance, and support with me throughout my period of study. I also express my heartfelt gratitude to my parents and family members for their continuous support, encouragement, understanding, and prayers, which gave me the strength and motivation to complete this work successfully.

Finally, I extend my whole-hearted thanks to all my friends and well-wishers for their encouragement, support, and cooperation throughout the completion of this dissertation.

ABISHA R T

CONTENTS

Chapter No.	Contents	Page No.
I	INTRODUCTION	1
II	REVIEW OF RELATED LITERATURE	12
III	METHODOLOGY	48
IV	ANALYSIS AND INTERPRETATION OF DATA	77
V	FINDINGS, IMPLICATIONS AND CONCLUSION	109
	REFERENCES	118
	APPENDICES	

LIST OF TABLES

Table No	Title	Page No
3.1	Details of the selected item in the smartphone usage scale	52
3.2	Details of the sample selected for the study	59
3.3	Distribution of the sample based on the locality of the institution	60
3.4	Distribution of the sample based on marital status	61
3.5	Distribution of the sample based on the year of study	62
3.6	Distribution of the sample based on the type of institution	63
3.7	Distribution of the sample based on fathers' qualifications	64
3.8	Distribution of the sample based on the mother's qualification	65
3.9	Distribution of the sample based on Age	66
3.10	Distribution of the sample based on the Optional subject	67
3.11	Distribution of the sample based on average daily smartphone usage	68
3.12	Distribution of the sample based on time spent on social media	69
3.13	Distribution of the sample based on smartphone use for academic purposes	70
4.1	Percentage distribution of different levels of the Smartphone Usage Scale	76

4.2	Percentage distribution of different levels of the Academic Procrastination Scale	77
4.3	Comparison of Smartphone Usage of prospective teachers based on the Locality of Institution.	78
4.4	Comparison of Smartphone Usage of prospective teachers based on Marital status	79
4.5	Comparison of Smartphone Usage of prospective teachers based on year of study	80
4.6	Comparison of Smartphone Usage of prospective teachers based on type of institution	81
4.7	Comparison of Smartphone Usage of prospective teachers based on their fathers' qualifications	82
4.8	Comparison of Smartphone Usage of prospective teachers based on their mothers' qualifications	83
4.9	Comparison of Smartphone Usage of prospective teachers based on their age	84
4.10	Comparison of Smartphone Usage of prospective teachers based on their optional subject	85
4.11	Comparison of Smartphone Usage of prospective teachers based on the average smartphone usage	86
4.12	Comparison of Smartphone Usage of prospective teachers based on the time spent on social media	87
4.13	Comparison of Scheffe's Smartphone Usage of prospective teachers based on the time spent on social media	88
4.14	Comparison of Smartphone Usage of prospective teachers based on the frequency of smartphone use for academic purposes	89

4.15	Comparison of Scheffe's Smartphone Usage of prospective teachers based on the frequency of smartphone use for academic purposes	90
4.16	Comparison of academic procrastination of prospective teachers based on their locale	91
4.17	Comparison of academic procrastination of prospective teachers based on their marital status	92
4.18	Comparison of academic procrastination of prospective teachers based on their year of study	93
4.19	Comparison of academic procrastination of prospective teachers based on their type of institution	94
4.20	Comparison of academic procrastination of prospective teachers based on their mothers' qualifications	95
4.21	Comparison of Scheffe's academic procrastination among prospective teachers based on their mothers' educational qualifications	96
4.22	Comparison of academic procrastination of prospective teachers based on their fathers' qualifications	97
4.23	Comparison of academic procrastination of prospective teachers based on their age	98
4.24	Comparison of Scheffe's academic procrastination among prospective teachers based on their age	99
4.25	Comparison of academic procrastination of prospective teachers based on their age	100
4.26	Comparison of academic procrastination of prospective teachers based on their average daily smartphone usage	101
4.27	Comparison of Scheffe's academic procrastination of prospective teachers based on their average daily smartphone usage	102

4.28	Comparison of academic procrastination of prospective teachers based on their time spent on social media	103
4.29	Comparison of academic procrastination of prospective teachers based on their frequency of smartphone use for academic purposes	104
4.30	Comparison of Scheffe's academic procrastination of prospective teachers based on Frequency of smartphone use for academic purposes	105
4.31	Relationship between smartphone use and academic procrastination of prospective teachers in total	106

LIST OF FIGURES

Figure No	Title	Page No
3.1	Distribution of the sample based on the locality of the institution	60
3.2	Distribution of the sample based on marital status	61
3.3	Distribution of the sample based on the year of study	62
3.4	Distribution of the sample based on the type of institution	63
3.5	Distribution of the sample based on fathers' qualifications	64
3.6	Distribution of the sample based on the mother's qualification	65
3.7	Distribution of the sample based on Age	66
3.8	Distribution of the sample based on the Optional subject	67
3.9	Distribution of the sample based on average daily smartphone use	68
3.10	Distribution of the sample based on time spent on social media	68
3.11	Distribution of the sample based on smartphone use for academic purposes	69
4.1	Percentage distribution of smartphone usage scale	76
4.2	Percentage distribution of the Academic Procrastination Scale	77

LIST OF APPENDICES

APPENDICES	CONTENT
Appendix A	General data sheet (Draft form)
Appendix B	Smartphone Usage Scale (Draft form)
Appendix C	General Data Sheet (final form)
Appendix D	Smartphone usage scale (final form)
Appendix E	Academic Procrastination Scale
Appendix F	Article published by the investigator

CHAPTER I

INTRODUCTION

1.1 NEED AND SIGNIFICANCE OF THE STUDY

1.2 STATEMENT OF THE PROBLEM

1.3 OPERATIONAL DEFINITION OF KEY TERMS

1.4 OBJECTIVES OF THE STUDY

1.5 HYPOTHESES OF THE STUDY

1.6 METHODOLOGY IN BRIEF

1.7 DELIMITATIONS OF THE STUDY

1.8 ORGANIZATION OF THE CHAPTERS

CHAPTER 1

Introduction

Technological advancements have altered individuals' communication, gathering information, and entertainment. Digital tools and social media platforms have become a fundamental part of daily life, allowing for immediate contact and knowledge sharing. Prospective teachers are using technology and multimedia materials in their teaching practices to improve lesson engagement and effectiveness. Teaching, learning and administrative activities in educational institutions have become more technology integrated with managing lessons, enhancing student engagement and recording attendance through mobile applications

The internet is a primary tool for fulfilling many of the coursework and research assignments that prospective teachers must complete. They have easy access to a wide variety of information and different types of internet resources, from the normal search engines like Google to special e-learning platforms that help with engagement in education. Second, the advent of technology provides multiple options for flexible and self-regulated learning, including digital tools such as e-books, along with rich immersive virtual classrooms and online blended learning platforms to adapt according to heterogeneous styles of a student. Moreover, digital pen drives, cloud-based storage sites, and several other innovative technological tools are regularly used to store, sequence, and share study materials, making the details very easily available for both teaching and learning.

The growing reliance on social media and smartphones has raised some general concerns. Teaching, learning, and administrative activities in educational institutions have become more technology-integrated, with mobile applications used to manage

lessons, enhance student engagement, and record attendance. Prospective teachers are using technology and multimedia materials in their teaching practices to improve lesson engagement and effectiveness. Overuse reduced face-to-face interaction, a habit of putting off academic work, and weakened attention span. It can also affect mental health, contributing to anxiety, stress, and disturbed sleep

Cybersecurity and digital privacy have also become important issues, as users frequently share personal information online without sufficient awareness of potential risks. Constant use of social media can negatively impact academic achievement and professional development. Prospective teachers must develop digital literacy, self-regulation, and critical thinking skills to minimise their negative effects.

Smartphones are a fundamental part of daily life and digital interaction as users often spend a significant amount of time scrolling through social media feeds, watching videos, liking and commenting on posts, and chatting with friends. Cognitively, excessive smartphone use can affect attention span, memory retention, and critical thinking skills. Emotionally, constant exposure to social media may lead to stress, anxiety, low self-esteem, and feelings of inadequacy due to social comparison.

Smartphone use is significantly related to increased academic procrastination among prospective teachers. As future teachers, they are expected to build good study habits, manage their time well, and pursue their professional development. Yet, frequent notifications through social media applications, messaging platforms, and entertainment applications often interrupt their concentration and prevent them from engaging in sustained academic work. The habit of constantly checking smartphones leads to distraction, which makes it difficult for students to complete work on time. Excessive smartphone use can lead to mental fatigue, decreased motivation and lack of

focus, which can lead to an increased tendency to procrastinate academic activities. Late-night phone use adds to the problem by disturbing sleep, resulting in tiredness and reduced academic engagement during the day.

Smartphone-induced procrastination among prospective teachers is an increasing concern that affects their academic achievement and future careers. It highlights the importance of developing self-regulation, digital discipline, and effective time management skills to ensure that smartphones are used as tools for learning rather than as distractions.

1.1 Need and significance of the study

Smartphones have developed into vital tools for learning, communication, and information access in the modern digital age. The use of smartphones has transformed the way individuals interact and communicate with the outside world. At present, smartphones are used as digital learning platforms, social media hubs, entertainment centres, web browsers, and communications tools. Prospective teachers, in particular, are becoming increasingly dependent on smartphones, and this dependence is closely connected to academic procrastination.

Smartphone overuse has a major effect on prospective teachers, the nation's future educators. Excessive use of mobile devices often results to insufficient time management, poor academics output, and higher levels of academic procrastination. As a result, many teacher educators become locked in a cycle of distraction and delay, affecting their academic growth and readiness for a career in teaching.

Academic procrastination, defined as the intentional postponement of academic tasks, is growing more prevalent practice among higher education students, and the practice is particularly common among prospective teachers. Rather than being

consistent with their academic responsibilities such as lesson planning, assignments, and preparation, many learners postpone their tasks until the very last moment. This type of behaviour helps reduce the quality of their learning also, reduces their capacity to develop critical teaching skills, such as planning, organization, and responsibility.

There exists a critical requirement to address the academic procrastination associated with smartphone usage. Procrastination is often seen as laziness, yet it actually exposes deep issues that involve inadequate self-regulation, a lack of digital control, and difficulties managing distraction. Continuous exposure to alerts, social media, and online entertainment makes it challenging for prospective teachers to stay focused on academic goals.

If not handled promptly, such behavioural patterns may become habitual or continue to persist through their professional lives, negatively impact effectiveness in teaching, classroom management, and student outcomes. Teachers who struggle with time management and self-discipline might experience difficulties to serve as positive role models for their students.

As a result of this, studying the relationship among smartphone usage and academic procrastination among prospective teachers is essential. It helps in understanding the fundamental causes of procrastination in the digital age and highlights the importance of fostering safe smartphone usage. This study also aims to offer practical measures such as strengthening time management skills, enhancing self-control, integrating digital literacy into teacher education, and supporting mindfulness usage of technology. Addressing this challenge is vital not merely for improving academic performance, but also for developing trained, well-organized, and effective prospective teachers.

1.2 Statement of the problem

In the current era of digital technology, smartphones have taken a regular place among prospective teachers. They provide several academic benefits, including information access, online study materials and communication tools. However, detrimental academic habits, especially academic procrastination, have been increasingly associated with uncontrolled and excessive use.

Many prospective teachers use their smartphones for socialising, leisure, and a variety of non-academic activities in addition to academic ones. This unrestrained use frequently causes them to lose focus on their academic work, which leads to poor exam preparation, delayed lesson planning, and delayed submissions.

According to previous studies, excessive smartphone use can have a negative impact on academic performance by making students more likely to put off work. Constant exposure to social media, alerts, and digital distractions impairs motivation and focus, making it more difficult for children to finish school assignments on time.

Research explicitly exploring how smartphone use affects academic procrastination among prospective teachers, a group that plays a crucial role in shaping the next generation of students, remains conspicuously lacking, despite increased awareness of this issue.

Therefore, the present study aims to investigate “*Academic Procrastination among Prospective Teachers in Relation to Smartphone Usage.*”

1.3 Operational definition of key terms

Smartphone Usage

Smartphone usage refers to how much prospective teachers use their smartphones for communication, entertainment, education, and social networking. Making calls, sending messages, perusing the internet, accessing online learning materials, utilizing educational applications, interacting with social media platforms. Thus, smartphone usage in this context represents how people use their smartphones in their daily lives and how it affects their academic conduct.

Academic procrastination

Academic procrastination is characterized as the purposeful and habitual postponement of starting or finishing academic-related tasks among prospective teachers. Routine activities such as studying, exam preparation, assignment writing, project completion, seminar preparation, and teaching aid development are all postponed. Educational procrastination in this context also suggests challenges with time management, a lack of self-regulation, decreased motivation, and a tendency to engage in more relaxing activities, such as using smartphones, rather than completing Academic activities.

Prospective teachers

Prospective teachers refer to those pursuing B.Ed. programme.

In this study, prospective teachers refer to B.Ed. Students studying in different colleges of education in Kanniyakumari district during the academic year 2024-2026

1.4 Objectives of the study

1. To find the level of smart phone usage among prospective teachers.
2. To find the level of academic procrastination among the prospective teachers.
3. To find the significant differences in smart phone usage among prospective teachers based on locale, marital status, fathers' educational qualification, mother's educational qualification, age, programme and year of study, area of specialization, type of institution, average daily smartphone use, time spent on social media, frequency of smartphone use for academic purposes
4. To find the significant difference in academic procrastination among prospective teachers based on locale, marital status, fathers' educational qualification, mothers' educational qualification, age, programme and year of study, area of specialisation, type of institution, average daily smartphone usage, time spent on social media, frequency of smartphone usage for academic purposes
5. To find the correlation between smartphone use and academic procrastination of prospective teachers.

1.5 Hypotheses of the study

1. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on locale
2. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on marital status
3. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the father's qualification
4. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the mother's qualification

5. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on their age
6. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on programme and year of study
7. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on their optional subject
8. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on the type of institution
9. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on average daily smartphone usage
10. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on time spent on social media
11. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on the frequency of smartphone use for academic purposes
12. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on time spent on social media
13. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on average daily smartphone usage
14. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the type of institution
15. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the fathers' qualifications

16. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the mothers' qualifications
17. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on marital status
18. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on their optional subject
19. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on programme and year of study
20. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on age
21. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on locale
22. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the frequency of smartphone use for academic purposes
23. There will be significant correlation between smartphone use and academic procrastination of prospective teachers.

1.6 Methodology in brief

Methods Used

Normative survey method was adopted for the present study

Population

The study was conducted on the sample of 400 prospective teachers who are studying regularly various colleges of education in Kanniyakumari district in the academic year 2025-2026 affiliated to TNTEU, Chennai

Sample

The sample used for the study is prospective teachers studying regularly at various college of Education in Kanniyakumari district affiliated with Tamil Nadu Teacher Education University, Chennai.

The sample size was 400.

Sampling Technique

Simple random sampling technique was used to select the sample.

The tools used for the study

1. Smartphone usage scale constructed and validated by the investigator
2. Academic procrastination scale developed by Porselvam K & Dr, Prasad P S

Statistical Techniques to be Used

1. Independent sample t-test for large sample
2. ANOVA followed by post hoc
3. Carl Pearson product moment correlation coefficient

1.7 Delimitations of the study

1. The size sample was limited to 400 prospective teachers only
2. The geographical area of the study was limited into Kanniyakumari district only

1.8 Organization of the chapters

Chapter I deals with the introduction, need and significance of the study, statement of the problem, operational definition of the key terms, objectives of the study, hypotheses framed for the study and delimitations of the study.

Chapter II deals with the theoretical overview and review of related literature.

Chapter III deals with the methodology of the study. The chapter consists of the test development and research design.

Chapter IV deals with the analysis and interpretations of the collected data.

Chapter V deals with the findings, conclusion, educational implications of the study and suggestions for the further research

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 THEORETICAL OVERVIEW OF THE VARIABLES

2.1.1. SMARTPHONE USAGE

2.1.2 ACADEMIC PROCRASTINATION

2.2. RELATED STUDIES

2.2.1 STUDIES RELATED TO SMARTPHONE USAGE

2.2.2 STUDIES RELATED TO ACADEMIC PROCRASTINATION

2.3 CRITICAL REVIEW

CHAPTER 2

REVIEW OF RELATED LITERATURE

The review of literature involves the systematic identification, location and analysis of documents containing information related to the research problem. The term is also used to describe the written component of a research plan or report that discusses received documents. These documents include articles, abstracts, reviews, dissertations, books, other research reports and electronic media.

The major purpose of reviewing the literature is to determine what has already been done that relates to the topic. It is to discover research strategies and specific data collection approaches that have or have not been productive in investigation of similar topics. The final and important and specific reason for reviewing the related literature is to know about the recommendations of previous researchers listed in their studies for further research.

This chapter is devoted to the review of research studies that are thought to have some bearing on the problem selected by the researcher. In order to develop deep insight and to evaluate the methodological practices emerging, the researcher made a survey of the available literature and reviewed the literature related to smartphone usage and academic procrastination. A thorough and prudent study of books, journals, research papers, educational reviews and websites have resulted in literature with reference to the topic under consideration. The investigator made an intensive search of all relevant studies of educational literature and selected those that were thought to be the topic under investigation

2.1 Theoretical overview of the variables

The current study focuses on three major variables: smartphone use, academic procrastination, and potential teachers. Smartphone usage refers to how future teachers utilize their smartphones for communication, education, leisure, and social networking. It encompasses tasks such as exploring the internet, accessing online learning resources, using educational apps, watching movies, and connecting with social media platforms. While smartphones promote learning and enable quick and easy access to information, excessive and uncontrolled use frequently results in distraction and decreased academic attention.

Academic procrastination is defined as the intentional postponement of getting started or completing academic activities such as studying, preparing for exams, writing assignments, attending seminars, and creating teaching materials. It indicates refers to such as poor time management, lack of self-management, and low motivation. The relationship between smartphone usage and academic procrastination can be understood using self-regulation theory, which proposes that excessive smartphone use impairs individuals' ability to control distractions and manage time effectively As a result, the purpose of this study is to investigate how smartphone use promotes academic procrastination among prospective teachers, as well as to emphasise the importance of responsible use of technology for ensuring better academic and professional outcomes.

2.1.1 Smartphone usage

Evolution of the Smartphone in India

The evolution of smartphones in India showcases a captivating narrative of technological progress and evolution. In the early 2000s, feature phones reigned

supreme, with brands such as Nokia, Motorola, and Samsung leading the market with 2G networks. Moving into the mid-2000s, the emergence of Nokia and BlackBerry smartphones, along with the advent of 3G networks, marked the beginning of a new era. The subsequent years witnessed the dominance of Android and iOS devices, with Samsung's Galaxy series gaining immense popularity and local brands like Micromax, Karbonn, and Lava making their mark with affordable Android options. The market further expanded from 2013 to 2016 with the introduction of 4G networks, the influx of Chinese brands like Xiaomi and Oppo, and the rise of online sales platforms like Flipkart and Amazon as major distribution channels. Between 2013 and 2016, the market saw significant growth due to the expansion of 4G networks, the entry of Chinese brands offering competitive devices, and the rise of online sales

5G Network

The introduction of 5G network technology in India marks a significant milestone in the country's telecommunications landscape, promising enhanced connectivity and a host of new opportunities. Here's an overview of how 5G is being rolled out in India:

Early Developments and Trials

India began its 5G journey with pilot trials conducted by major telecom operators and equipment vendors. These trials were essential in testing the technology's capabilities and preparing the infrastructure for a wider rollout. In 2022, the Indian government auctioned 5G spectrum frequencies to major telecom operators, including Reliance Jio, Bharti Airtel, and Vodafone Idea. This auction was a crucial step in enabling commercial 5G services.

Launch and Rollout

In October 2022, Bharti Airtel and Reliance Jio officially launched 5G services in select cities, including Delhi, Mumbai, Chennai, and Kolkata. These initial rollouts focused on urban areas with high demand for advanced connectivity. The rollout strategy includes expanding 5G coverage to other cities and rural areas. The government and telecom operators aim to achieve broader 5G deployment across the country in the coming years.

Technological Advancements

Indian telecom operators are focusing on leveraging 5G's high-speed capabilities to improve internet speeds, enhance user experience, and support applications requiring substantial bandwidth. The low latency of 5G technology promises improvements in realtime applications, such as online gaming, telemedicine, and autonomous vehicles. Increased network capacity will also support the growing number of connected devices.

Industry and Economic Impact

Boost to Digital Services: 5G is expected to accelerate the growth of digital services in India, including augmented reality (AR), virtual reality (VR), and Internet of Things (IoT) applications.

Economic Growth: The adoption of 5G is anticipated to drive economic growth by fostering innovation and creating new business opportunities across various sectors, such as manufacturing, healthcare, and education.

Challenges and Considerations

Expanding 5G coverage requires significant investment in infrastructure, including the installation of new cell towers and upgrading existing networks. The

Indian government continues to work on policies and regulations to support the deployment and growth of 5G technology, ensuring fair competition and efficient use of spectrum.

Future Prospects

As 5G infrastructure becomes more widespread, it is expected to facilitate the development of smart cities, enhance mobile connectivity, and improve overall quality of life. Ongoing research and development will play a key role in optimizing 5G technology and exploring new applications and use cases

In summary, the introduction of 5G in India is a transformative development that is set to reshape the telecommunications landscape, driving technological advancements and economic growth while addressing infrastructure and regulatory challenges.

Smartphone usage among prospective teachers in India

The past decade has witnessed a significant increase in the use of smartphones among prospective teachers in India, impacting various aspects of their lives. In 2022, the ownership rate of Smartphone's among prospective teachers in India stands at around 90%, with an average daily usage of 4-5 hours. When it comes to academic usage, a large percentage of prospective teachers utilize their Smartphone's for E-learning, research, assignments, and attending virtual classes, especially during the COVID-19 pandemic. Social media platforms such as WhatsApp, Instagram, and Facebook are utilized by almost 95% of college students for staying connected. Messaging apps are used by about 98% of students to communicate with both peers and faculty members. Approximately 80% of college students make use of streaming services like YouTube, Netflix, and Amazon Prime Video for entertainment purposes.

Around 60% of students were engaged in mobile gaming activities. Mobile payment apps like Paytm disruptions due to late-night smartphone usage have also been highlighted by a significant percentage of students. When considering Regional Insights, it is evident that smartphone ownership is high among college students in both urban and rural areas, with slightly higher ownership rates in urban areas. The increasing penetration of smartphones in rural areas can be attributed to the affordability of devices and better connectivity options available.

Internet Usage among prospective teachers is substantial, with average data consumption of 10-15 GB per month for educational and entertainment purposes. The majority of students have access to 4G networks, and there is a growing anticipation for the adoption of 5G networks in the near future. Trends in Educational App Usage reveal that popular apps like Byju's, Unacademy, Coursera, and Khan Academy are widely used among students. Additionally, a significant percentage of students use educational apps at least once a week for supplementary learning. Survey data from 2019 and 2021 conducted by IAMAI and NCERT respectively indicate high smartphone ownership rates among students, with a significant number using smartphones for internet access and online learning. The surveys also highlight the prevalent use of educational apps for enhancing learning experiences among prospective teachers. Smartphone sales in India have seen significant growth in 2024. In Q1, the market experienced an 8% year-over-year increase in volume and an 18% rise in value. Key drivers of this growth include better inventory levels and multiple new launches, although overall sales were slightly below expectations due to decreased retail footfalls and reduced discretionary spending among consumers.

Leading brands in the market include Vivo, which captured the top spot by volume for the first time with a 19% share, driven by its 5G leadership and strong imaging capabilities. Xiaomi and Samsung also maintained strong positions, with

Xiaomi showing significant growth due to its mass-market 5G strategy. The offline sales channel reached a record high post COVID, capturing 64% of the market share in Q1 2024. Overall, India's smartphone market is expected to continue its growth in 2024, albeit at a modest single-digit rate, driven by premiumization, 5G adoption, and post-COVID upgrade

Role of smartphone among prospective teachers

Smartphones play a crucial role in the lives of prospective teachers in India, impacting various aspects of their academic, social, and personal lives. Here are some key roles that smartphones serve among prospective teachers.

Academic Use

1. Access to Information and Resources: Smartphones provide students with instant access to educational resources, research papers, e-books, and online courses. Apps like Google Scholar, Coursera, and Khan Academy are widely used for learning and research.

2. Communication and Collaboration: Smartphones enable students to communicate and collaborate with peers and professors through emails, messaging apps, and social media platforms. Tools like WhatsApp and Google Meet are frequently used for group discussions and virtual classes.

3. Educational Apps: Various educational apps offer interactive learning experiences. Apps like Duolingo for language learning, Quizlet for flashcards, and Microsoft OneNote for note-taking are popular among students.

4. Online Classes and E-Learning: The COVID-19 pandemic has further cemented the role of smartphones in education, with many students attending online classes and submitting assignments via their mobile devices.

Social Interaction

1. Staying Connected: Smartphones help students to stay connected with friends and family through social media platforms like Facebook, Instagram, and Snapchat. This connectivity is crucial for maintaining relationships and a sense of community.

2. Networking: Platforms like LinkedIn are used by students for professional networking, job searches, and connecting with alumni and industry professionals.

Personal Use

1. Entertainment: Smartphones serve as a primary source of entertainment, with students streaming music, movies, and TV shows on apps like Spotify, Netflix, and YouTube.

2. Gaming: Mobile games are a popular pastime, with students playing games like PUBG Mobile, Among Us, and Call of Duty Mobile for relaxation and fun.

3. Health and Fitness: Health apps like MyFitnessPal and workout apps like Nike Training Club help students maintain their physical health by tracking their fitness routines and diet.

Smartphone usage in Academics

The use of smartphones in Indian academics has grown significantly in the last decade, reshaping the educational landscape.

Access to Educational Resources

With the help of smartphone Students can access a wide range of e-books, academic journals, and online libraries through apps like Kindle, Google Books, and institutional repositories. Various Educational apps are been introduced in the market like Byju's, Khan Academy, and Unacademic offer video lessons, quizzes, and

interactive exercises across various subjects and grade levels helps the students in learning.

Online Learning and Courses

Platforms like Coursera, edX, and Udemy provide access to courses from global universities and institutions. The Indian government's platforms like SWAYAM and DIKSHA offer free online courses and resources for both students and teachers.

Communication and Collaboration

Apps like Zoom, Microsoft Teams, and Google Classroom facilitate virtual classrooms, enabling real-time interaction between students and teachers. Messaging apps like WhatsApp and Telegram were widely used for forming study groups, sharing notes, and collaborative learning.

Interactive Learning

AR and VR apps enhance learning experiences by providing immersive educational content in subjects like history, science, and geography. Educational games and apps make learning more engaging and interactive, helping students to understand complex concepts through games

Personalized Learning

AI-driven apps provide personalized learning experiences to students by adapting content to the student's learning pace and style. Apps help track academic progress, identify areas of improvement, and provide targeted practice exercises.

Examination and Assessment

At present many of the educational institutions conduct online exams through dedicated platforms

Changes by smartphone in students' Academic life

The advent of smartphones has brought significant changes in students' academic lives, impacting various aspects of their education. Some of the changes are access to information, communication and collaboration, learning tools and applications, interactive learning and academic performance and assessment.

1. Access to Information

a. Instant Access to Resources

Smartphones provide students with immediate access to a vast array of information and resources, including online encyclopaedias, academic journals, and educational websites. It has Enhanced research capabilities and the ability to quickly find answers to questions.

b. E-books and Online Libraries

Students can access textbooks and reference materials through e-books and online libraries. It has reduced the need for physical books and allows for more flexible reading and studying.

2. Communication and Collaboration

a. Enhanced Communication

Smartphones facilitate easy communication with peers, teachers, and academic advisors through calls, texts, and emails. Smartphone has improved co-ordination among students to do their group projects and provides quick access to academic support.

b. Collaboration Tools

Apps like Google Docs, Slack, and Microsoft Teams allow students to collaborate in real-time on assignments and projects. Streamlines group work and fosters collaborative learning environments.

3. Learning Tools and Applications**a. Educational Apps**

A plethora of educational apps are available for learning languages, practicing maths, exploring science concepts, and more. It provides interactive and engaging ways to learn, catering to different learning styles.

b. Organizational Tools

Smartphone has various organizational tools such as Calendar apps, to-do lists, and planners help students manage their time and assignments effectively. It enhances productivity and helps students stay on top of their academic responsibilities.

4. Interactive Learning**a. Multimedia Learning**

Smartphone helps the students to access videos, podcasts, and interactive tutorials enriches the learning experience. It makes learning more dynamic and helps in understanding complex concepts through different mediums.

b. Virtual Classrooms

Platforms like Zoom and Google Classroom allow for remote learning and virtual classes. It also provides flexibility in attending classes from anywhere and supports continued learning during disruptions like pandemics.

5. Academic Performance and Assessment

a. Immediate Feedback

Many educational platforms offer instant feedback on quizzes and assignments for the students and it helps them to understand their mistakes quickly and learn more effectively.

b. Digital Note-Taking

With the help of Apps like Evernote and OneNote allow students to take and organize notes digitally. It enhances the note-taking efficiency and makes it easier to organize and retrieve information.

2.1.3 Academic procrastination

Procrastination

The term ‘procrastination’ refers to delaying tasks which you consider as urgent or important and doing something else instead, the substitution work having lower priority and being less important. After doing so, people typically find excuses. Not all delay, though, is procrastination. Delay is part of structuring and prioritizing, whereas procrastination is needless voluntary postponement of tasks undertaken in the knowledge that it may be harmful to you in regard to your performance or feelings. Procrastination is so common behaviour that many researchers think that it was not worth investigating; and procrastination does not create much difficulties for the students in achieving their academic goals. Many students cannot finish their schoolwork not only because of their low intelligence or ability, but because they delay in doing their schoolwork or studies.

Different kinds of procrastination

The focus of this study is on academic procrastination, which is not a ‘one-go’ procrastination. It is a tendency and or a habit that is deep rooted in daily life behaviour. Therefore, it is important to know the phenomenon of procrastination in all aspects.

According to Ellis and Knaus (1977) there are at least three kinds of procrastination:

1. **Delaying in personal development:** in the case of delaying in personal development, individual fails to achieve set goals.
2. **Delaying in personal maintenance:** in the case of delaying in personal maintenance, individual fails to finish the daily tasks that help to make daily life easier.
3. **Delaying in accomplishing responsibility:** in the case of delaying in responsibility, individual fails to do the tasks that should be done within time so as not to bring inconvenience to other people.

Jiao and Onwuegbuzie (2000) classify procrastination into five types as follows:

1. Decisional Procrastination: It is a delay in decision-making process. The procrastinators always hesitate when they are given choices. As they have difficulty in making decision, they usually delay it until the last minute and therefore the decision is not based on new information but on the last-minute choice.

2. Neurotic Procrastination: It is a delay in major life decisions, such as career, marriage etc. This will diminish the chances of success because of the delay in decision making.

3. Compulsive Behaviour: It is a behaviour to do some unimportant tasks and the important things are not done.

4. Life routine procrastination: It is to put off daily tasks and not to finish them as they may think these tasks are boring or not so important.

5. Academic procrastination: The procrastinators are not being able to finish the school assignments on time. School assignments include all kinds of academic work, such as preparing for a test, submitting school term papers etc.

Academic procrastination

Academic procrastination is a special form of procrastination that occurs in the academic settings. It involves knowing that one needs to carry out an academic task or undertake an academic activity, such as writing a term paper, studying for examinations, finishing a school related project, or undertaking the weekly reading assignments, but, for one reason or another, failing to motivate oneself to do so within the expected time frame (Ackerman and Gross, 2005).

Definition of academic procrastination

According to Binder (2000), Academic Procrastination defined is an irrational delay in the academic task due to the contradiction between intention and action, which leads to negative consequences for the procrastinator.

According to Wolters (2003), academic procrastination is the delay of academic work, even though one wants to complete it on time. For university students, this is closer to reality, because no college students would like to delay their work purposefully in order to get a poor grade.

According to Deniz et al (2009), academic procrastination is the delay of academic responsibility, such as submitting schoolwork or a delay of preparation for examination.

Characteristics of academic procrastinators

Brownlow and Reasinger (2000) contend that procrastinators have the following characteristics

1. Academic procrastinators may have difficulty in self-regulation, such as setting plan, and pursuing goals.
2. Academic procrastinators are dissatisfied with their own performance, and often earn lower grades than the non-procrastinators.
3. Academic procrastinators spend less time on their studies, start to work later than the time they plan to, and delay in submitting their assignments

Causes of academic procrastination

1. **Time management:** It includes the act or process of planning and exercising the control over the amount of time spent on specific activities, to increase effectiveness, or efficiency but procrastinating students are not able to manage the time properly because of engaging themselves in unnecessary tasks which consumes the lot of precious time.
2. **Perfectionism:** The adolescents want to do academic work or assignments with perfection. Self-oriented perfectionism (personal dimension) is ability to handle the task flawlessly by meeting the self-imposed high standards of performance under overly critical assessment of self-behaviour, adoption of all-or-none principle by focusing solely on either success or failure in the results attained. “Socially-prescribed perfectionism” (social dimension) towards the expectations of others from the self. This dimension contains the perceived ability to meet the standards and expectations imposed by others deemed important by the self. there is a belief that others set very high standards for the self and that one can be satisfied only by

achieving those standards. For achieving these standards, adolescents work or improve their work till the last minute, which leads to academic procrastination.

3. **Metacognition:** Metacognition is the process of “thinking about thinking” and knowing “what we know” and “what we don’t know”. It refers to higher order mental processes and ability to evaluate one’s own comprehension and understanding of subject matter and using that evaluation to predict how well one might perform on a task. It includes knowledge about a particular strategy of learning or problem solving and ability to know when and how to use a particular skill with efficiency to attain a specific objective within a specified time frame. Knowledge about metacognition leads to affect academic procrastination in negative way.
4. **Worry about failure:** The fear of not performing to the expectations of the people around you especially the family and friends hold back a student’s ability to perform up to his potential.
5. **Aversion to the task:** Procrastination in some case is directly related to the avoidance of a task which a student feels to be unwanted or not that important for his/her success or failure. The level of importance of a certain task or an assignment makes a student to procrastinate. The student could have the ability to perform or finish certain task but because of the content of the task, the student could find the task boring or unpleasant. This leads to academic procrastination.
6. **Internet Usage:** Internet usage as a source of technology that contributes to academic learning in a positive or negative way. It is one form of technological advancement that adolescent use on a daily basis. They predominantly use the internet to connect with their peers and as a means of doing various online activities like useless chatting, messaging, surfing online educative content, videogames,

emails and time killing by random searching and not doing their jobs. Excessive and non-essential use of Internet causes an individual to procrastinate important tasks in the academic field.

Ways to overcome procrastination

- Be conscious of behaviours and views that lead to procrastinating.
- Break the bigger projects into smaller tasks to tackle the problem in a step-by-step manner.
- Seek help for self-defeating issues, for example, dread, anxiety trouble in concentrating poor time management uncertainty, and compulsiveness.
- Set practical objectives and build up an individual positive connection between the assignments and the solid important goals.
- Evaluate their objective, qualities, shortcomings, and needs.
- Modify their environment for that recently increased point of view.
- Restructure exercises of everyday life.
- Discipline themselves to the needs they set.
- Motivate themselves with agreeable activities, mingling, and helpful interests.
- Tackle issues in a little square of time, rather than attempting to take care of entire issues on the double and afterward be threatened.

Factors responsible for academic procrastination

1. **Absence of healthy study environment:** Absence of a healthy study environment can lead to amotivation and academic procrastination among students. It can lead to a lack of confidence in them because of which they fail to participate in academic activities and stay disconnected from it.

2. **Inadequacy in managing one's own timetable:** When students fail to manage their own timetable, which was planned and prepared by themselves, it largely leads to Academic Procrastination.
3. **Laziness:** Laziness is also one of the major factors of Academic procrastination. Lying down without doing anything and being lazy are labelled as pampering themselves in the present generation. Therefore, whenever one feels a little exhausted, they pamper themselves by being lazy and doing nothing.
4. **Lack of self-confidence:** It is a major factor in procrastination among students. When an individual feels that they lack the ability to complete a task or that a certain amount of energy will be required to complete a particular task, they usually develop a distaste for the task/assignments, thus causing academic procrastination.
5. **Being occupied by the use of technological gadgets:** computers, smartphones, television and other technological gadgets are a major cause of distraction among the students. They stay in their world of gadgets and forget to complete assignments or homework assigned to them.

Procrastination may be avoided or reduced in a variety of ways, according to a variety of writers.

- Balance your time
- Psych yourself into productivity
- Imagine the repercussions; change your environment
- Change Environment
- Balance your time
- Break down your work into manageable chunks,

- Hang out with people who inspire you to take action, and set clear deadlines.
- Find someone who has already achieved the goal
- Identify the root causes and coping mechanisms of your procrastination

Influence of technology on procrastination

Since we live in a technologically advanced world, procrastination is no exception. Procrastination may be influenced in both good and bad ways by modern technology.

I. Negative effects of procrastination

Procrastination may be caused by a variety of factors, one of which is our aversion to using technology, such as checking email, social media, watching videos, and browsing blogs and forums instead of getting our job done, even when we know we should. Procrastination may be exacerbated by technology, as several studies have shown. Using gadgets for video and YouTube has a significant influence on students' procrastination, whereas the use of online games, social media, news, and social knowledge has very little effect, since the internet is costly for a junior high school student to access.

II. Positive effect on Procrastination

The negative impact of technology on procrastination is offset by the good impact of technology on procrastination. Procrastination may be combated in a variety of ways, including the following:

- **Track Your Activities:** Using this tool, one may observe where he or she is spending the most time and what one can do to better maximise his or her time.

- **No Willpower:** It is a blocking application. This website blocking programme allows you to limit your engagement with applications such as Twitter, Facebook, Instagram, Reddit, and many more.
- **Focus at Will:** With the aid of this application, one may listen to tranquil, soothing music that will help him/her focus and prevent distractions.
- **List:** This programme assists you in selecting tasks to perform in one day and then checking them off one by one when they are accomplished.
- **Evernote:** Working on a collective project is said to drive you to work more. However, it has been shown that when we work with others, we procrastinate even more. This programme enables us to make reminders for all team members, store notes that are available across all devices, build a to-do list, monitor people's progress, and much more.
- **Google Calendar:** This tool enables us to create reminders for tasks that need to be completed.

According to (Ellis and Knaus 1977), there are at 3 types of procrastination:

- i. **Delaying in Personal development:** Individuals who put off personal development fail to meet their objectives
- ii. **Delaying in Personal maintenance:** Individuals who put off personal upkeep fail to do everyday actions that help to make daily living easier.
- iii. **Delaying in taking responsibility:** When a person delays taking responsibility, he or she fails to complete tasks on time, thereby causing inconvenience to others.

These three types of procrastination make the lives of procrastinators miserable.

Academic procrastination encompasses the first and third types of procrastination, in

which learners must meet their academic goals and fulfil their academic responsibilities.

2.2 Related studies

The review of related studies involves a deliberate attempt on the part of the researcher to examine and review all types of available relevant information for finding out what has already been done so far on the topic of his research study

The investigator collected studies on smartphone usage and academic procrastination. The investigator reviewed the related studies and classified them into two categories.

1. Studies related to smartphone usage
2. Studies related to academic procrastination

Studies related to smartphone usage

The investigator collected studies on smartphone usage for the present study. The studies reviewed are given below

Usman Ismail Abdulmalik and Nura Abubakar Anka (2025) examined the effects of smartphone usage on the academic performance of undergraduate students in tertiary institutions in North-West Nigeria. The study adopted a survey research design and was conducted on a sample of 400 students, of which 396 questionnaires were returned correctly. A closed-ended questionnaire was used for data collection, and descriptive statistics such as frequency, percentage, and tabulation were employed for analysis. The findings revealed that students mainly used smartphones for communication and academic purposes, while inadequate ICT infrastructure and limited awareness regarding educational use were identified as major challenges.

Carli Ochs and Jürgen Sauer (2023) explored disturbing aspects of smartphone usage behaviour and factors leading to problematic smartphone use. The study adopted a qualitative research design and was conducted on a sample of 99 participants using an online questionnaire with open-ended questions. Thematic analysis was employed for analysing the data. The study identified themes such as habitual use, social expectations, and avoidance behaviour, which negatively affected life management and social interaction.

Sharma et al. (2025) investigated the impact of bedtime smartphone usage on sleep quality among undergraduate medical students. The study adopted a cross-sectional research design and was conducted on a sample of 302 students using a pre-tested semi-structured Google Forms questionnaire and the Pittsburgh Sleep Quality Index (PSQI). The findings indicated that prolonged bedtime smartphone usage was significantly associated with poor sleep quality.

Zahra Vahedi and Alyssa Saiphoo (2018) analyzed the association between smartphone use, stress, and anxiety through a meta-analytic review. The study examined 39 independent samples involving 21,736 participants and used effect-size analysis for interpretation. The findings demonstrated a significant positive relationship between problematic smartphone use and psychological distress.

Shiksha Panwar (2021) evaluated the impact of smartphone usage on employee engagement and performance in higher educational institutions. The study adopted a survey method among teaching faculty members using a survey questionnaire. The findings highlighted the role of smartphones in supporting professional communication, engagement, and work performance.

Yang et al. (2019) examined problematic smartphone use among Chinese university students and its association with academic anxiety, procrastination, self-regulation, and subjective wellbeing. The study adopted a survey method and was conducted on a sample of 475 university students using psychometric scales related to smartphone addiction and academic behaviour. The findings revealed that problematic smartphone use significantly predicted academic anxiety and procrastination, while self-regulation reduced these negative effects.

Balaji et al. (2014) investigated behavioural patterns associated with mobile phone usage and their effects on health among medical students in Chennai. The study adopted a descriptive survey method and was conducted on a sample of 213 medical students using a structured questionnaire. The findings revealed sleep disturbance, headache, irritability, and poor academic concentration among excessive smartphone users.

Maryam Amidi (2014) explored the use of mobile phone features among university students in Iran. The study adopted a survey method and was conducted on a sample of 1,180 students using a self-report questionnaire. The findings showed frequent use of SMS, alarms, dictionaries, and educational applications for academic support.

Naveenta Gupta et al. (2015) analyzed mobile phone usage patterns and their effects on psychological health, sleep, and academic performance among medical students. The study adopted a survey method and was conducted on a sample of 1,000 students using a selfadministered questionnaire. The findings indicated that excessive late-night smartphone usage negatively affected sleep quality, concentration, and academic performance.

Alphana Vaidya et al. (2016) examined mobile phone usage patterns among youth. The study adopted a survey method and was conducted on a large sample of 19,410 arts and commerce students aged 18–25 years using questionnaires. The findings revealed that Android smartphones were the most preferred devices among students.

Businge Phelix Mbabazi et al. (2018) investigated the challenges and effects associated with mobile devices for learning in universities. The study adopted a survey method and was conducted on a sample of 181 students using questionnaires and interviews. The findings identified slow internet connectivity, battery issues, and lack of devices as major barriers affecting mobile learning.

Deepali R. Naidu (2018) explored smartphone usage patterns, purposes, and preferences among undergraduate students. The study adopted a survey method and was conducted on a sample of 110 students using a structured questionnaire. SPSS, regression analysis, and ANOVA were used for data analysis. The findings revealed differences in smartphone usage patterns based on gender and educational stream.

Surya Rimal (2018) examined mobile phone usage patterns among medical students in Eastern Nepal. The study adopted a cross-sectional research design and was conducted on a sample of 229 students using a structured questionnaire. The findings showed that smartphones were widely used for communication, entertainment, and academic purposes.

Monika Yadav and Poonam Malik (2020) investigated smartphone usage patterns among college students. The study adopted a survey method and was conducted on a sample of 60 students using a questionnaire consisting of 39 statements.

The findings revealed both supportive and negative effects of smartphone usage on students' academic and personal life.

Shruthi C. S. and Indiramma (2019) explored smartphone usage patterns among college students from different age groups. The study adopted a survey method and was conducted on a sample of 160 students using questionnaires and percentage analysis. The findings showed that students frequently used social media applications for communication and social interaction.

Satyajit Nayak and Kunwar Singh (2020) evaluated smartphone usage patterns for academic pursuits among university students. The study adopted a survey method and was conducted on a sample of 215 students using questionnaires. The findings indicated that smartphones supported storage of course materials, email access, and retrieval of academic resources.

Sowmya et al. (2020) examined the effects of mobile phone usage on students' academic performance, health, and social relationships. The study adopted a survey method among college students using questionnaires. The findings revealed that excessive smartphone use negatively affected sleep, health, and academic activities, though it also reduced stress through communication.

Cheng Dai et al. (2021) investigated smartphone usage and psychological wellbeing among college students in China. The study adopted a qualitative research method and was conducted on a sample of 70 participants through interviews. The findings revealed that excessive smartphone usage negatively influenced psychological wellbeing and increased the need for balanced smartphone use.

Rashmi Singh et al. (2021) analysed smartphone usage patterns among young Indians. The study adopted a survey method and was conducted on a sample of 2,000

participants aged 16-30 years using statistical analysis through SPSS and AMOS. The findings revealed frequent day and night smartphone usage and higher levels of smartphone addiction among students from joint families.

Pinky Bhagat et al. (2021) explored smartphone usage among university students during the COVID-19 pandemic. The study adopted a survey method and was conducted on a sample of 165 university students using questionnaires, t-tests, ANOVA, and factor analysis. The findings highlighted the importance of smartphones in supporting online learning and access to study materials during the pandemic.

Sourabh Dwivedi (2022) investigated the impact of smartphone usage on students' lifestyle and academic performance during the COVID-19 pandemic. The study adopted a survey method and was conducted on a sample of 103 respondents through online mode using a questionnaire on smartphone usage patterns and their effects. The findings revealed that excessive smartphone usage negatively affected academic performance, physical activity, sleep patterns, health, and family interaction among students.

Ruchi Soni et al. (2017) examined smartphone addiction, sleep quality, and associated behavioural problems among adolescents. The study adopted a cross-sectional research design and was conducted on a sample of 587 students. The tools employed in the study were a specially designed proforma, the Smartphone Addiction Scale (SAS), the Pittsburgh Sleep Quality Index (PSQI), and the DASS-21. The findings revealed that excessive smartphone users experienced poor sleep quality, depression, anxiety, stress, and behavioural problems.

Taiwo Amole et al. (2021) explored problematic smartphone usage patterns among youth in Kano Metropolis, Nigeria. The study adopted a descriptive cross-

sectional research design and was conducted on a sample of 320 youths aged 15–24 years. SPSS version 21 was used for data analysis. The findings revealed that many respondents were habitual smartphone users, spent several hours daily on smartphones, and frequently checked phones during nighttime.

Jen Chun Wang (2022) analysed the impact of smartphone usage on students' learning effectiveness and academic performance. The study adopted a quantitative research design and employed statistical techniques such as descriptive analysis, t-test, one-way ANOVA, correlation, MANOVA, and structural equation modelling. The findings revealed that students with higher smartphone usage showed lower academic performance and learning effectiveness.

Jeevitha P and Amsaveni R (2024) investigated the problems encountered by college students in virtual learning environments. The study adopted a survey method and was conducted on a sample of 105 college students from Coimbatore who owned smartphones. SPSS, chi-square, and ANOVA were used for data analysis. The findings revealed significant associations between gadget usage and eye problems, while many students also reported feelings of isolation during virtual learning.

Lakshnavva Gondi and Jayashree Itti (2024) examined smartphone addiction and related health issues among students. The study adopted a survey method and was conducted on a sample of 80 students selected through stratified random sampling from Murarji Desai College of Residential Sciences, Karnataka. Percentage analysis and chi-square tests were employed for data analysis. The findings revealed significant associations between smartphone addiction, educational level, and health-related problems among students.

Nebiyu Mengistu et al. (2023) investigated problematic smartphone and social media usage among undergraduate students in Southern Ethiopia universities during the COVID-19 pandemic. The study adopted a cross-sectional research design and was conducted on a sample of 1,232 university students selected through random sampling technique. Simple and multiple linear regression analyses were used for interpretation. The findings revealed that female and first-year students showed higher levels of problematic smartphone use and poor sleep quality.

Zhang J and Zeng Y (2024) analyzed the relationship between smartphone addiction, academic anxiety, and academic achievement among college students. The study adopted a survey method and was conducted on a sample of 2,056 undergraduate students from Liaoning Normal University selected through cluster sampling technique. The collected data were analysed to examine the mediating role of academic anxiety and the moderating role of sense of academic control. The findings revealed a negative relationship between smartphone addiction and academic performance, while academic anxiety mediated this relationship.

Shruti Verma and Dinesh Nagar (2026) examined the impact of compulsive smartphone usage on adolescents' academic functioning. The study adopted a quantitative survey design and was conducted on a sample of 247 Class 12 students from CBSE schools in Bhopal selected through stratified random sampling. The tools employed were the Compulsive Smartphone Use Scale and the Academic Functioning Scale, and ANOVA and regression analysis were used for interpretation. The findings revealed that excessive smartphone usage negatively affected academic functioning and highlighted the need for digital wellbeing interventions among adolescents.

Studies related to academic procrastination

The investigator collected 26 studies on academic procrastination for the present study. The studies reviewed are given below

Tuncay Akinci (2021) examined the predictive relationships among problematic smartphone use, self-regulation, academic procrastination, and academic stress among university students. The study adopted a survey method and was conducted on a sample of 632 university students. The tools employed in the study were the Smartphone Addiction Scale, Academic Procrastination Scale, Academic Self Regulation Scale, and Academic Expectations Related Stress Scale. Path analysis was used for data analysis. The findings revealed that self-regulation negatively predicted problematic smartphone use and academic procrastination, while problematic smartphone use significantly predicted academic procrastination and academic stress.

Anwar et al. (2022) investigated the relationship between social media usage and academic procrastination among students. The study adopted a survey research design using multistage sampling technique and was conducted on a sample of 240 students from intermediate, graduate, and postgraduate levels in Peshawar district. The tools employed were the Social Networking Time Use Scale (SONTUS) and Academic Procrastination Scale (APS). The findings revealed a significant positive correlation between social media usage and academic procrastination among students.

Jimg Tian et al. (2021) explored the influence of mobile phone addiction and academic procrastination on academic achievement among Chinese medical students. The study adopted a cross-sectional research design and was conducted on a sample of 3,511 medical students through an online questionnaire survey. The tools employed were the Scale of Academic Achievement, MPPUS-10, and APS-S. Hierarchical

multiple regression analysis was used for analysis. The findings revealed that mobile phone addiction and academic procrastination negatively affected academic achievement and learning performance among students.

Miaoyan Su et al. investigated the relationship among smartphone addiction, academic procrastination, and anxiety among university students. The study adopted a diary-based research approach and was conducted on a sample of 306 university students selected randomly from Jiangxi Province. A 10-day diary follow-up method was used for data collection. The tools employed were the Smartphone Addiction Scale-Short Version, Academic Procrastination Scale, and Anxiety Scale. The findings revealed that anxiety significantly predicted academic procrastination directly and indirectly through smartphone addiction.

Aatif Iftikhar et al. (2022) analyzed the mediating effect of academic amotivation between smartphone addiction and academic procrastination among university students. The study adopted a cross-sectional quantitative research design and was conducted on a sample of 896 undergraduate and graduate students. The tools employed were the Problematic Use of Mobile Phone Scale, Academic Motivation Scale–College Version, and Academic Procrastination Scale–Short Form. The findings revealed a significant positive relationship between smartphone addiction, academic amotivation, and academic procrastination.

Yalın Kılıc Türel and Ozlem Dokumacı (2022) examined the relationship among media and technology use, academic procrastination, and academic achievement among adolescents. The study adopted a quantitative research design and was conducted on a sample of 1,278 middle and high school students. The tools employed were the Media and Technology Usage and Attitude Scale, Academic

Procrastination Behavior Scale, demographic information form, and students' grade point averages. The findings revealed that increased media and technology usage negatively affected academic achievement through academic procrastination.

Fang Liu et al. (2022) investigated the mediating roles of time management and learning strategic approach in the relationship between smartphone addiction and academic procrastination. The study adopted a cross-sectional research design and was conducted on a sample of 1,129 college students selected through cluster random sampling. The tools employed were the Mobile Phone Addiction Index Scale, Time Management Disposition Scale, Revised Approaches to Studying Inventory, and Aitken Procrastination Scale. Structural equation model analysis was used for interpretation. The findings revealed that smartphone addiction positively influenced academic procrastination and negatively affected time management and learning strategies.

Anwar et al. (2025) explored the effect of problematic smartphone use on academic procrastination among students in Pakistan. The study adopted a cross-sectional correlational research design and collected data from students aged 18–30 years studying in public and private institutions. The tools employed were the Smartphone Addiction Scale and Academic Procrastination Scale. Correlation and regression analyses were used for data interpretation. The findings revealed that problematic smartphone use significantly predicted academic procrastination among students.

Alvia et al. (2024) examined the relationships among loneliness, social media addiction, and academic procrastination among adolescents. The study adopted a correlational research design and was conducted on a sample of 247 students. The

findings revealed positive relationships between loneliness, social media addiction, and academic procrastination.

N. Kaur (2023) investigated academic procrastination in relation to anxiety among adolescents. The study adopted a survey method and was conducted on a sample of 100 senior secondary school students selected through random sampling. The findings revealed a positive and significant relationship between academic procrastination and anxiety.

S. Subba and M. Chingnunhoih (2023) explored smartphone addiction and academic procrastination among college students. The study adopted a survey method and was conducted on a sample of 200 college students selected through random sampling. The findings revealed a positive relationship between smartphone addiction and academic procrastination among students.

A. Kaur and P. C. Jena (2022) examined academic procrastination and academic anxiety among senior secondary school students. The study adopted a descriptive survey method and was conducted on a sample of 400 students selected through simple random sampling. The findings revealed a strong positive relationship between academic procrastination and academic anxiety.

M. Moosivand et al. (2022) investigated whether smartphone addiction predicts depression, anxiety, stress, and academic procrastination among students. The study adopted a descriptive correlational research design and was conducted on a sample of 275 adolescent students selected through stratified sampling. The findings revealed significant positive relationships between smartphone addiction, stress, anxiety, depression, and academic procrastination.

H. A. Malla (2021) examined academic procrastination and smartphone addiction among secondary school students using a mixed-method approach. The study was conducted on a sample of 200 students selected through simple random sampling technique. The findings revealed that male students showed higher academic procrastination and smartphone addiction compared to female students.

M. Varalakshmi and B. S. K. Reddy (2020) investigated the role of academic anxiety, academic stress, and academic self-efficacy in academic procrastination among college students. The study was conducted on a sample of 400 undergraduate students from Chittoor district, Andhra Pradesh. The findings revealed that academic procrastination significantly influenced academic stress, anxiety, and self-efficacy among students.

J. Vivar-Bravo et al. (2021) analyzed the association between academic procrastination and anxiety among university students. The study adopted a descriptive correlational research design and was conducted on a sample of 196 university students. The findings revealed a significant positive relationship between academic procrastination and anxiety.

Y. Wang (2021) explored the longitudinal relationship between academic procrastination and test anxiety among adolescent students. The study adopted a cross-lagged panel research design and collected data at two different time points during a semester. The findings revealed that academic procrastination significantly contributed to increased test anxiety over time.

J. Saplavaska and A. Jerkunkova (2018) examined the relationship between academic procrastination and anxiety among university students. The study adopted an empirical research approach and was conducted on a sample of 60 university students

aged 20–27 years. The findings revealed a positive relationship between academic procrastination and anxiety among students.

Sindhu and Thulasidharan (2018) investigated the influence of academic procrastination, achievement motivation, and social adjustment on scholastic achievement among secondary school students. The study adopted a survey research design and was conducted on a sample of 600 students selected through stratified sampling. The findings revealed that academic procrastination significantly influenced scholastic achievement among students.

A. K. Kalia and M. Yadav (2014) explored academic procrastination in relation to socio demographic variables among adolescents. The study adopted a survey research design and was conducted on a sample of 400 adolescent students selected through random sampling. The findings revealed that gender and locale did not significantly influence academic procrastination among students.

Azimah and Nirwana Herman (2026) examined the relationship between academic procrastination and academic stress among students. The study adopted a quantitative correlational research design and was conducted on a sample of 313 students selected through stratified random sampling. Likert-scale checklists and Pearson Product Moment correlation were used for analysis. The findings revealed a significant positive relationship between academic procrastination and academic stress.

Tan Thanh Vo (2026) investigated the roles of academic self-efficacy, cognitive engagement, and perceived stress in academic procrastination among university students. The study adopted a cross-sectional survey design and was conducted on a sample of 516 university students. Partial least squares structural equation modelling (PLS-SEM) was used for analysis. The findings revealed that perceived stress

positively predicted academic procrastination, while cognitive engagement negatively influenced procrastination.

Rushika Shrestha and Babita Singh (2025) examined academic procrastination among undergraduate nursing students in Birgunj. The study adopted a descriptive cross-sectional design and was conducted on a sample of 180 nursing students selected through stratified proportionate random sampling. The tools employed were a structured questionnaire and Academic Procrastination Scale. The findings revealed that most students showed low levels of academic procrastination.

Poonam Srivastava (2026) explored the relationship between academic procrastination and academic achievement among secondary school students. The study adopted a descriptive survey design and was conducted on a sample of 100 students from CBSE schools in Varanasi. The tools employed were the Tuckman Procrastination Scale and a personal information questionnaire. The findings revealed a strong negative relationship between academic procrastination and academic achievement.

Janiella Collado, Ardrien Vitanzos, and Angelica Lazaro (2026) investigated the mediating effect of digital literacy on the relationship between time management and academic procrastination among college students. The study adopted a descriptive-correlational research design and was conducted on a sample of 353 college students selected through stratified random sampling. Standardized tools for digital literacy, time management, and academic procrastination were used for data collection. The findings revealed that digital literacy significantly mediated the relationship between time management and academic procrastination.

Wilhelmina and Aditya Nugraha (2026) examined the mediating role of academic procrastination in the relationship between smartphone addiction and

academic stress among college students. The study adopted a quantitative correlational design and was conducted on a sample of 264 college students in Yogyakarta. Standardized scales for smartphone addiction, academic procrastination, and academic stress were used for data collection. The findings revealed that smartphone addiction significantly increased academic stress both directly and indirectly through academic procrastination.

Critical review

Review of research studies and literature about the problems under investigation is a fundamental process to provide insight into the problem, broaden the general principles and concepts and sharpen understanding. The investigator reviewed 60 studies related to the present study. This helped the investigator to gain adequate insight into the nature of the problem under study. The investigator critically reviewed the reports, the studies, the designs, the methods, sampling techniques, tools used and their recommendations for further research. Most of the studies have employed survey methods. To the best of the knowledge of the investigator, there are not many studies focusing on academic procrastination among prospective teachers in Relation to smartphone usage. Hence, the researcher made an attempt to investigate academic procrastination among prospective teachers in Relation to smartphone usage.

CHAPTER III

METHODOLOGY

3.1 METHOD ADOPTED FOR THE STUDY

3.2 TOOLS USED FOR THE STUDY

3.3 POPULATION AND SAMPLE

3.4 STATISTICAL TECHNIQUES USED FOR THE STUDY

CHAPTER-3

METHODOLOGY

Research plays an important role in the development of knowledge and the advancement of society. It is a systematic process through which new knowledge is generated and existing ideas are examined, refined, or corrected based on evidence and analysis. Research contributes to the expansion of knowledge by providing scientific, objective, and evidence-based understanding of various phenomena. It involves the careful collection, organisation, analysis, and interpretation of information to address specific problems or answer research questions. Through this process, research helps in identifying solutions to issues affecting individuals and society.

Research methodology is an essential component of any study, as the reliability of research findings largely depends on the appropriateness of the methods adopted. An unsuitable method may lead to inaccurate results and improper interpretation of data. Research methodology refers to the systematic and theoretical analysis of the methods and procedures used in conducting research. It includes the principles, techniques, and strategies applied for collecting and analysing data scientifically. The process of research methodology generally involves identifying the research problem, reviewing related literature, formulating hypotheses or research questions, collecting data, analysing and interpreting the findings, and drawing meaningful conclusions. Therefore, research methodology provides a structured and systematic approach for conducting research effectively.

3.1 Method adopted for the study

The selection of an appropriate research method and research design depends on the nature of the research problem and the type of data required for the study. The chosen method should be consistent with scientific principles and suitable for obtaining reliable and meaningful findings. A well-designed research method helps the researcher draw valid conclusions and ensures the credibility of the study.

The present study adopted the normative survey method, which focuses on describing and analysing existing conditions, practices, attitudes, and trends within a particular context. This method is widely used to study situations as they exist in the present and to collect relevant information through survey techniques. The data collected through this method help researchers understand current conditions and provide a basis for improving existing practices and planning future actions.

Normative survey method

The normative survey method aims not only to analyse and interpret the status of an institution, group, or area, but also to evaluate the adequacy of existing conditions by comparing them with accepted standards. According to Gravetter et al. (2003), a research study that uses surveys to obtain information about a particular group of individuals is known as a survey research design. However, the use of a survey as a tool for data collection alone does not necessarily make a study a survey research design. In survey research design, the survey is mainly used to describe the variables under investigation. Therefore, survey research is often referred to as descriptive research. Survey studies may differ in scope, nature, and purpose depending on the research problem. Some surveys may cover large populations such as countries, states, districts, cities, or school systems, while others may focus on smaller groups or specific

institutions. Data for survey studies may be collected either from the entire population or from a representative sample. The normative survey method studies and interprets existing conditions and relationships. It mainly deals with prevailing practices, beliefs, attitudes, ongoing processes, and emerging trends in a particular field of study.

Characteristics of normative survey method

The following are the characteristics of normative survey method.

1. It gathers data from a relatively large number of cases.
2. It is essentially cross-sectional.
3. It is not concerned with the characteristics of the individual but with generalised statistics of the whole population.
4. It requires logical and skilful reporting of data gathered.
5. It requires expert imaginative planning
6. It is more reliable.
7. It determines the present trends and solves current problems.
8. It may be quantitative as well as qualitative research

3.2 Tools used for the study

The instruments that are used to gather new facts are called tools. Tools are essential for the collection of data from the sample. Suitable tools are used for collecting the data required for the study. The selection of suitable tools is necessary for successful research. The investigator can use one or more tools for a single study. The nature of the tools depends upon the nature of the problem under investigation and the sample of the study. By keeping various objectives of the study in mind, the investigator used the following tools for data collection.

1. Smartphone usage scale constructed and validated by Abisha & Dr Prasad P S(2025)
2. Academic procrastination scale developed by Porselvam K & Dr Prasad P S(2013)

Construction and validation of the technostress scale

The Smartphone usage scale was prepared by Abisha R T and Dr Prasad P S, aimed to measure the smartphone usage among prospective teachers.

For the construction of the tool, the investigator adopted the following steps

1. Planning of the test
2. Item Writing
3. Item editing
4. Arrangement of items
5. Draft scale
6. Preliminary try-out
7. Pilot study
8. Scoring
9. Item Analysis
10. Item Selection
11. Establishing reliability and validity
12. Final scale

1) Planning of the test

The Smartphone Usage Scale was designed and prepared by Abisha R T and Dr Prasad P S to measure the level of smartphone usage among prospective teachers. The investigators plan to select the dimensions, namely social media usage, leisure time

usage, Messaging dependency, Problematic use, Information overload, and sleep disturbances.

2) Item writing

Item editing was done with the help of the research supervisor in order to check the ambiguity, irrelevant items, spelling errors, misconceptions and redundancy. As per the suggestion of the research supervisor, irrelevant and ambiguous items were removed, and certain items were modified.

3) Arrangement of items

In this step, the investigator arranged all the edited items carefully under each form.

4) Draft of the Scale

The draft scale was prepared by printing the items with the provision to mark responses. The draft scale consists of 90 items under six dimensions, namely social media usage, leisure time usage, Messaging dependency, Problematic use, Information overload, and sleep disturbances. Each dimension has 15 statements, and it consists of positive and negative statements. Each statement has 5 options. The necessary instructions for the respondent were also printed. A sample copy of the draft scale is enclosed in the appendix(A)

5) Preliminary try-out

To determine the tool's strengths and limitations, a preliminary tryout was organised. A rough estimate of the time limit for replying to the items was made, along with the difficulty in each of the items. This time frame for replying to the questions was noted. In this stage, the supervisor assisted the investigator in revising certain

ambiguous, uncertain items and minor changes were made in the language and sentence construction in some of the items.

7) Pilot Study

The investigator conducted the pilot study for the draft form of the smartphone usage scale. It consists of six dimensions, namely social media usage, leisure time usage, Messaging dependency, Problematic use, Information overload, and sleep disturbances. Each dimension consists of 15 items, and the test consists of 90 items. The investigator visited the various teacher education institutions in Kanniyakumari District from 23-02-2026 to 13-03-2026

8) Scoring

he tool consists of a five-point scale, namely A-Always, B-Frequently, C-Sometimes, D-Rarely and E-Never. The scoring pattern was 1,2,3,4,5 for positive statements and 5,4,3,2,1 for negative statements.

9) Item analysis

Item analysis is an important step in the test construction. Items can be analysed qualitatively in terms of their content and qualitatively in terms of their statistical properties.

Qualitative analysis includes the consideration of the content validity and the evaluation of items in terms of effective item writing procedures.

Qualitative analysis, on the other hand, includes the measurement of item difficulty and item discrimination power. Both the validity and reliability of any test depend ultimately on the characteristics of the items. High reliability and validity can be built into a test in advance through item analysis.

Item analysis was carried out using Cronbach's Alpha, computed through statistical software (Jamovi). Cronbach's alpha coefficient measures the internal consistency, or reliability, of a set of survey items. This method provides a comprehensive analysis of each item through item-rest correlation. The responses of the participants were entered into the software, and the complete set of items was subjected to reliability analysis.

The software automatically computed Cronbach's Alpha, which reflects the overall internal consistency of the scale. In addition, the item-rest correlations for each item were examined. If the value in this column is lower than the overall alpha.

Cronbach's alpha (α), also known as the coefficient alpha, is a widely used statistic for assessing the internal consistency reliability of a scale or test. It provides an estimate of how well the items in a scale are measuring the same underlying construct. In simpler terms, it tells us how closely related a set of items is as a group. Understanding Cronbach's alpha is crucial for researchers, data analysts, and anyone interpreting research that utilizes multi-item scales. The Cronbach's alpha coefficient ranges from 0 to 1. Higher values indicate greater internal consistency reliability.

10) Item selection

The investigator analysed the item from the collected responses of the prospective teachers. After item analysis, the investigator analysed the items using the Cronbach's Alpha procedure from the collected responses of the prospective teachers.

For each item, the item-rest correlation and "Cronbach's Alpha if Item Deleted" values were examined. $\alpha \geq 0.9$: Excellent internal consistency. Items showing an adequate item-rest correlation and items whose removal did not increase the overall alpha value were retained.

Items with low or negative item–rest correlation, which reduced the reliability of the scale, were rejected. After item analysis and selection, the final draft of the tool consists of 44 items. The details of the selected items are given in the Table3.1

- $0.8 \leq \alpha < 0.9$: Good internal consistency
- $0.7 \leq \alpha < 0.8$: Acceptable internal consistency
- $0.6 \leq \alpha < 0.7$: Questionable internal consistency
- $0.5 \leq \alpha < 0.6$: Poor internal consistency
- $\alpha < 0.5$: Unacceptable internal consistency

Table3.1

Details of the selected item in the smartphone usage scale

ITEM. NO	ITEM-REST CORRELATION	CRONBACH'S ALPHA	SELECTED ITEMS
1	0.00909	0.978	R
2	0.94298	0.977	S
3	0.11705	0.978	R
4	0.2851	0.978	R
5	0.92138	0.977	S
6	0.34116	0.977	R
7	0.15327	0.978	R
8	0.85389	0.977	S
9	0.18097	0.978	R
10	-0.07313	0.978	R
11	0.22185	0.978	R
12	0.36240	0.977	R
13	0.92350	0.977	S
14	0.45535	0.977	R
15	0.91184	0.978	S
16	0.03571	0.977	R

17	0.95239	0.978	S
18	0.18563	0.977	R
19	0.91813	0.977	S
20	0.44884	0.977	R
21	-0.11536	0.977	R
22	0.91813	0.977	S
23	0.95039	0.977	S
24	0.33796	0.977	R
25	0.90812	0.977	S
26	0.44463	0.977	R
27	0.92138	0.977	S
28	0.90694	0.977	S
29	0.30372	0.977	R
30	0.29907	0.978	R
31	0.19710	0.978	R
32	0.16114	0.978	R
33	0.18595	0.978	R
34	0.89382	0.977	S
35	0.35374	0.977	R
36	0.37769	0.977	R
37	0.88844	0.977	S
38	0.91183	0.977	S
39	0.35883	0.977	R
40	0.94907	0.977	S
41	0.49978	0.977	R
42	0.90830	0.977	S
43	0.91049	0.977	S
44	0.94823	0.977	S
45	0.94589	0.977	S
46	0.95039	0.977	S
47	0.95039	0.977	S
48	0.46246	0.977	R
49	0.94319	0.977	S

50	0.94319	0.977	S
51	0.02796	0.978	R
52	0.00457	0.978	R
53	0.14349	0.978	R
54	0.14649	0.978	R
55	0.83406	0.977	S
56	0.83214	0.977	S
57	0.93978	0.977	S
58	0.50531	0.977	R
59	0.91072	0.977	S
60	0.87951	0.977	S
61	0.92651	0.977	S
62	0.92651	0.977	S
63	0.87993	0.978	S
64	0.13501	0.978	R
65	0.94717	0.977	S
66	0.95689	0.977	S
67	0.20311	0.977	R
68	0.35041	0.977	R
69	0.21667	0.977	R
70	0.35041	0.977	R
71	0.91345	0.978	S
72	0.90862	0.978	S
73	0.92954	0.978	S
74	0.93953	0.978	S
75	0.19419	0.978	R
76	0.17575	0.978	R
77	0.09537	0.978	R
78	0.10951	0.977	R
79	0.17575	0.978	R
80	0.09537	0.978	R
81	0.94928	0.978	S
82	0.88650	0.977	S

83	0.89927	0.977	S
84	0.88955	0.977	S
85	0.27809	0.977	R
86	0.94912	0.977	S
87	0.36403	0.977	R
88	0.92133	0.977	S
89	0.93988	0.977	S
90	0.95689	0.977	S

Note: 'R' denotes rejected items and 'S' denotes selected items

11) Establishing reliability and validity

Reliability and validity are essential to the effectiveness of any data-gathering procedure. Establishing the validity and reliability is necessary for assessing the quality of a research instrument, ensuring it accurately measures what it intends to measure and consistently produces similar results.

Reliability

Reliability is the accuracy or precision of a measuring instrument. According to Stangor (2004), the reliability of a measure refers to the extent to which it is free from random errors. One direct way to determine the reliability of a measured variable is to measure it more than once.

Reliability, in the context of measurement, refers to the consistency and stability of a measure. Cronbach's alpha specifically addresses *internal consistency reliability*. This type of reliability focuses on the extent to which the items within a scale are measuring the same underlying construct. If the items are highly correlated, it suggests they are all tapping into the same attribute and contributing to a consistent measurement.

The Cronbach's alpha coefficient ranges from 0 to 1. Higher values indicate greater internal consistency reliability. The reliability of the coefficient was found to be

$$0.7 \leq \alpha < 0.8$$

Validity

Validity of the test answers the question of what a test measures and how well it measures it whatever it is designed to measure. *Best (1978)* clarifies, "A test possesses validity to the extent that it measures what it claims to measure".

The two types of validity established for this tool were face validity and content validity.

Face validity

Face validity means the given tool appears to measure what it is intended to measure. The tool was submitted to panel experts, and based on their opinion, it appeared to measure the relevant objectives of the tool. A close look at the items of the scale reveals that each and every item is capable of reflecting the variable. This provides face validity for the tool.

Content validity

Content validity is one of gathering evidence that will support the ideas that a scale measures. Certain characteristics are to make a careful examination of the scale-taking situation and the test behaviour in it.

The content validity of the present scale was found by systematically analysing the area by a panel of 2 experts in the field of education. Based on their opinion, the scale has sufficient coverage of its content. The content average is an indication of its validity. Content validity of a test is also established by adopting a similar approach as we do in the case of establishing face validity

12) Final scale

The final draft of the scale consists of 44 items, including both positive and negative statements, arranged in a simple, clear and meaningful manner. The items were selected based on the reliability results obtained through Cronbach's Alpha and their individual contribution to the overall internal consistency of the tool. The final draft is enclosed in the appendix(C)

3.2.2 Adopted tool used for the study

The Academic Procrastination Scale, developed by Por Selvam K and Dr Prasad P.S in (2013), was used for the study. The Academic Procrastination Scale has 72 items to measure the academic procrastination behaviour of prospective teachers. The consideration was given to the variable tested and to the different dimensions involved. For each statement, three alternatives: Yes, Sometimes, No. For each positive statement, the scoring is given as 1,2,3 and for negative items, the score is reversed. The reliability of the scale was found by the split-half method. The reliability of the scale was found to be 0.748 (by rank difference correlation). The adopted academic procrastination scale is enclosed in the appendix- 2

3.3 Population and sample

The term "population" describes the complete group of people from whom the observer seeks to draw any conclusions. A population is any group of individuals who have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type or a more restricted part of that group (Best & Khan, 2007). The present study was conducted on a population of prospective teachers who were studying in different colleges of education in Tamil Nadu during the academic year 2024-2025. A sample is a discrete segment of the

population chosen for research and observation. One can conclude the features of the population it is derived from by analysing the details of the sample.

The present study was conducted on a sample of 400 prospective teachers who were studying in various colleges of education in Kanniyakumari district. A simple random sampling technique was used to select the sample. While selecting the subjects, the representations were given to factors such as locale, marital status, fathers' educational qualification, mother's educational qualification, age, programme and year of study, area of specialisation, type of institution, average daily smartphone use, time spent on social media, frequency of smartphone use for academic purposes. The details of the sample selected are given in **Table 3.2**

Table 3.2

Details of the sample selected for the study

S.no	Name of the college	Sample size
1	Bethlehem College of Education, Karungal	95
2	Mar Chrysostom College of Education, Kirathoor	55
3	Hindu College of Education, Nagercoil	72
4	K. A. B. D. College of Education, Painkulam	44
5	Grace College of Education, Padanthalummodu	32
6	Bethesda College of Education, Bethelpuram	34
7	Christian College of Education, Marthandam	12
8	All Saints college of Education, Malayadi	13
9	Holy Trinity College of Education, Eadacode	18
10	All Saints college of Education, Malayadi	25

Distribution of the sample based on background

Variables

Table 3.3

Distribution of the sample based on the locality of the institution

<i>Locale</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
<i>URBAN</i>	<i>145</i>	<i>36.3%</i>	<i>36.3%</i>
<i>RURAL</i>	<i>255</i>	<i>63.7%</i>	<i>100.0%</i>

From Table 3.3, it is clear that the sample consists of both rural (145) and urban (255) prospective teachers. The percentages corresponding to rural and urban prospective teachers are 36.3% and 63.7%, respectively.

Figure 3.1

Distribution of the sample based on the locality of the institution

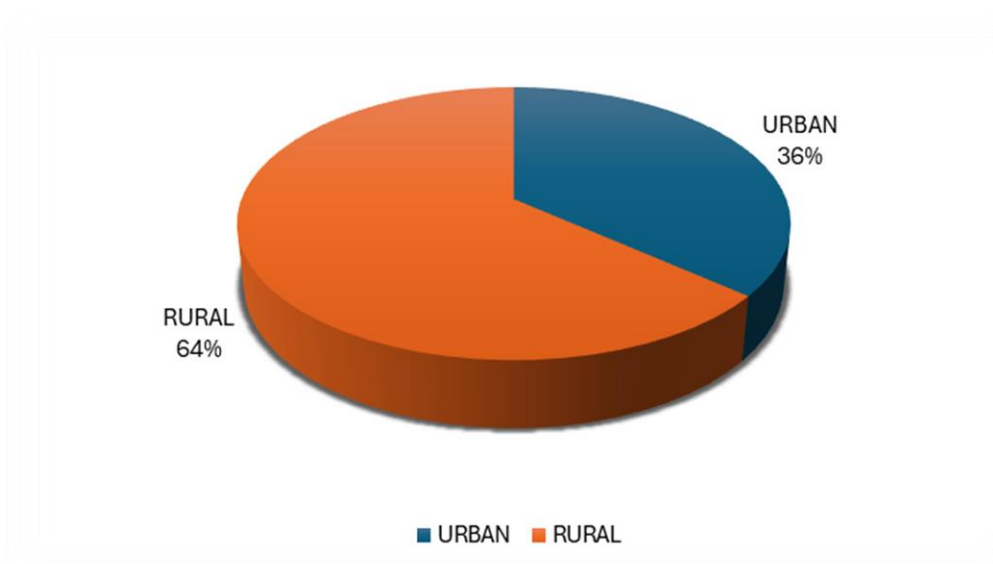


Table 3.4*Distribution of the sample based on marital status*

<i>Marital status</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Married	113	28.2%	28.2%
Single	287	71.8%	100.0%

From Table 3.4, it is clear that the sample consists of both married (113) and unmarried (287) prospective teachers. The percentages for married and unmarried prospective teachers are 28.2% and 71.8%, respectively.

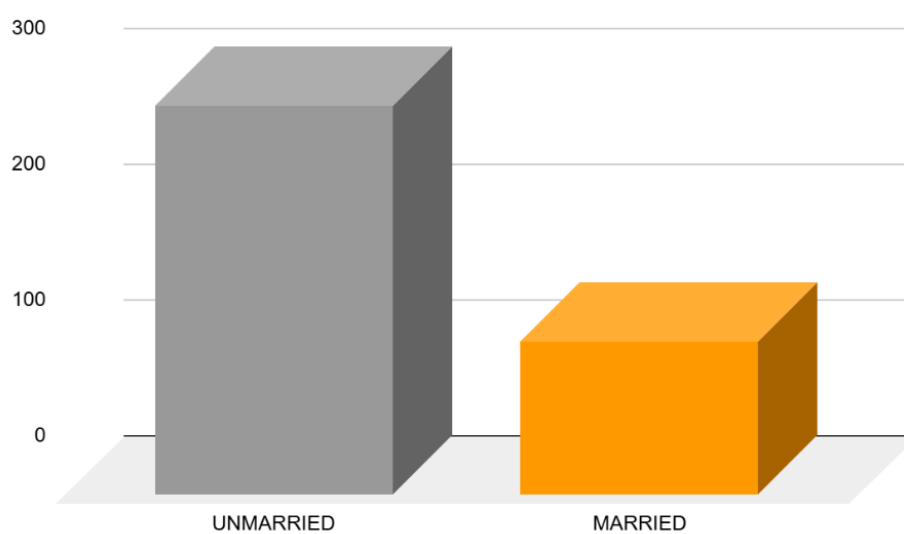
Figure 3.2*Distribution of the sample based on marital status*

Table 3.5*Distribution of the sample based on the year of study*

<i>Year of study</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
B.Ed. First year	171	42.8%	42.8%
B.Ed. Second year	229	57.3%	100.0%

From Table 3.5, it is clear that the sample consists of both B.Ed. first year (171) and B.Ed. Second year (229) prospective teachers. The percentages corresponding to B.Ed. first year and B.Ed. In the second year, prospective teachers are 42.8% and 57.3%, respectively.

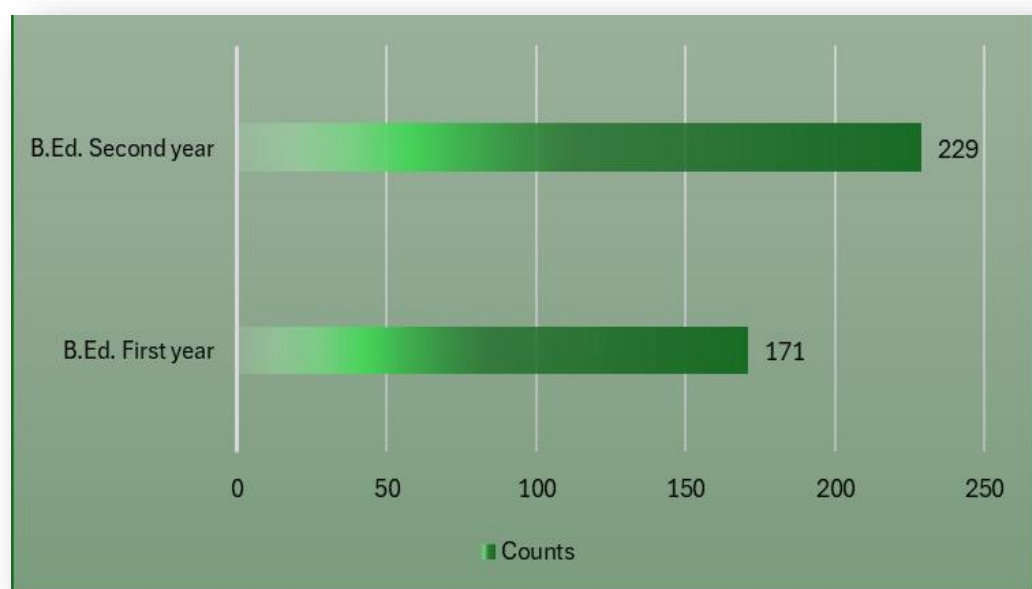
Figure 3.3*Distribution of the sample based on the year of study*

Table 3.6*Distribution of the sample based on the type of institution*

<i>Type of institution</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Self-financing	335	83.8%	83.8%
Aided	65	16.3%	100.0%

From Table 3.6, it is clear that the sample consists of both self-financing (335) and aided (65) institutions. The percentages corresponding to self-financing and aided institutions are 83.8% and 16.3%, respectively.

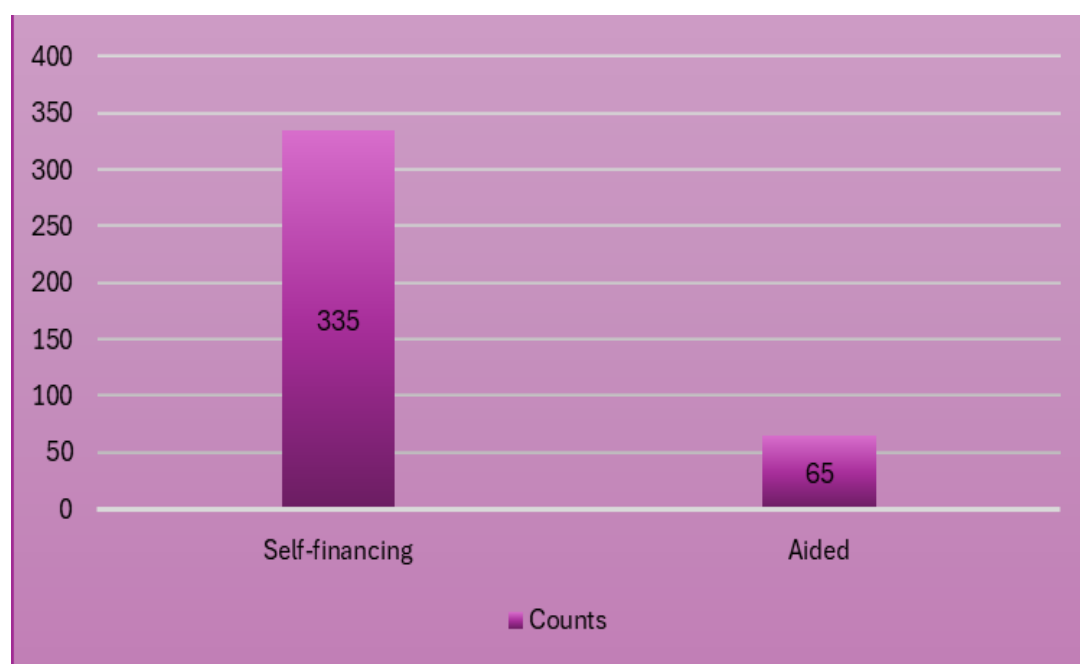
Figure 3.4*Distribution of the sample based on the type of institution*

Table 3.7

Distribution of the sample based on fathers' educational qualifications

<i>Fathers' Educational qualifications</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Below SSLC	178	44.5%	44.5%
Degree and above	88	22.0%	66.5%
SSLC and above	134	33.5%	100.0%

From Table 3.7, it is clear that the sample consists of prospective teachers whose fathers' qualifications are below SSLC (178), SSLC and above (134), and degree and above (88). The percentages corresponding to below SSLC, SSLC and above, and degree and above are 44.5%, 33.5%, and 22.0% respectively.

Figure 3.5

Distribution of the sample based on fathers' educational qualifications

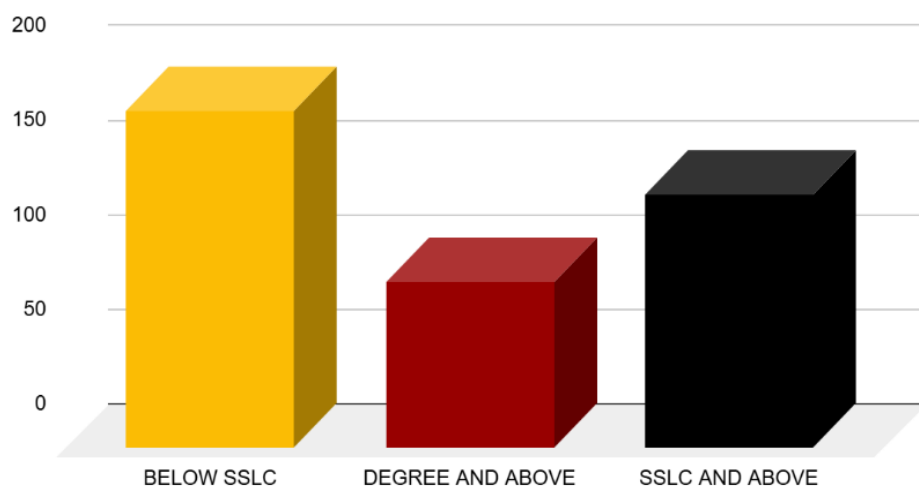


Table 3.8***Distribution of the sample based on the mother's educational qualification***

<i>Mothers' educational qualifications</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Below SSLC	144	36.0%	36.0%
SSLC and above	164	41.0%	77.0%
DEGREE and above	92	23.0%	100.0%

From Table 3.8, it is clear that the sample consists of prospective teachers whose mothers' qualifications are below SSLC (144), SSLC and above (164), and degree and above (92). The percentages corresponding to below SSLC, SSLC and above, and degree and above are 36.0%, 41.0%, and 23.0%, respectively.

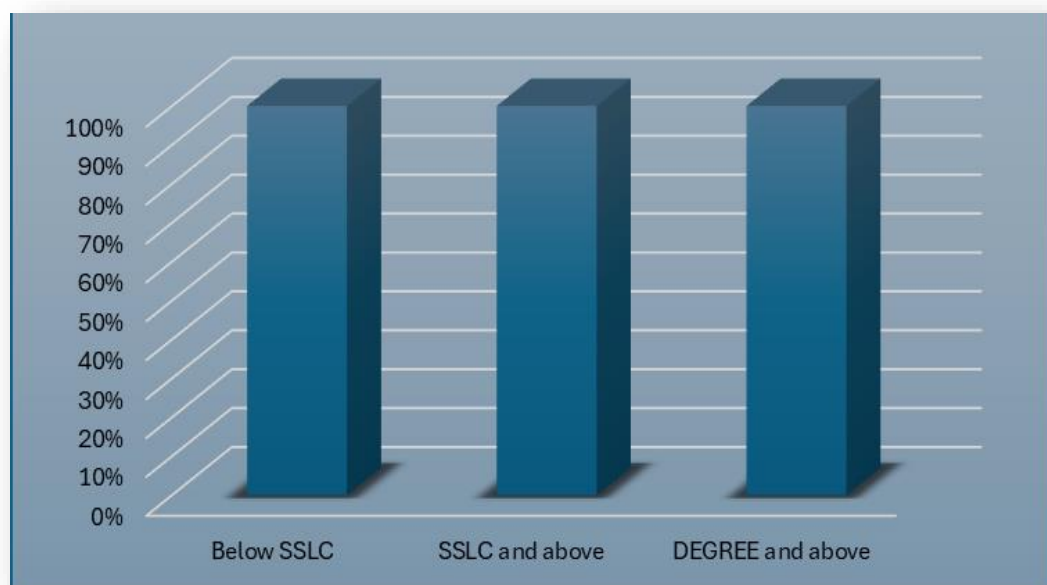
Figure 3.6***Distribution of the sample based on the mother's educational qualification***

Table 3.9*Distribution of the sample based on their age*

<i>Age</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Above 25 years	88	22.0%	22.0%
20-22 years	117	29.3%	51.2%
23- 25 years	195	48.8%	100.0%

From Table 3.9, it is clear that the sample consists of prospective teachers aged above 25 years (88), 20–22 years (117), and 23–25 years (195). The percentages corresponding to above 25 years, 20–22 years, and 23–25 years are 22.0%, 29.3%, and 48.8%, respectively.

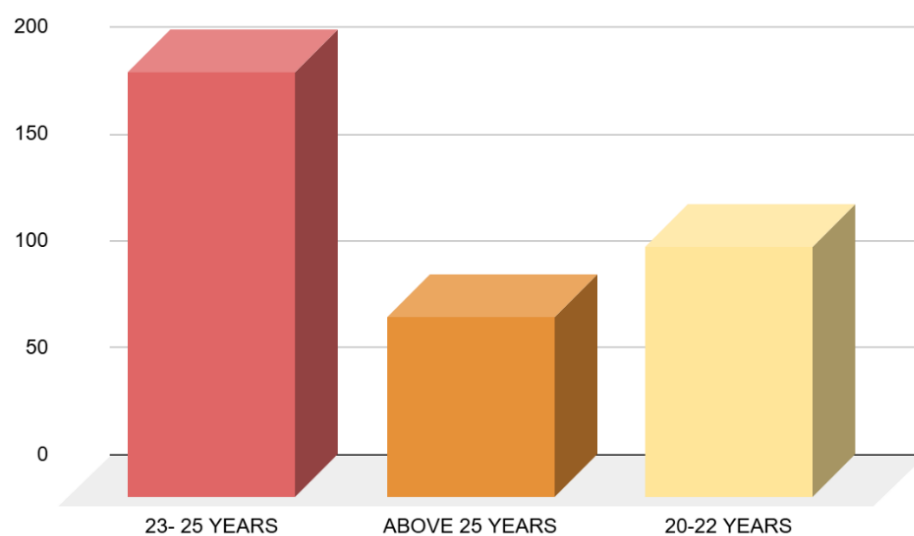
Figure 3.7*Distribution of the sample based on Age*

Table 3.10*Distribution of the sample based on the optional subject*

<i>Locale</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
<i>Arts</i>	<i>185</i>	<i>46.3%</i>	<i>46.3%</i>
<i>science</i>	<i>215</i>	<i>53.8%</i>	<i>100.0%</i>

The distribution of the sample based on the stream of study shows that 46.3% of the prospective teachers belonged to the Arts stream, while 53.8% belonged to the Science stream, respectively.

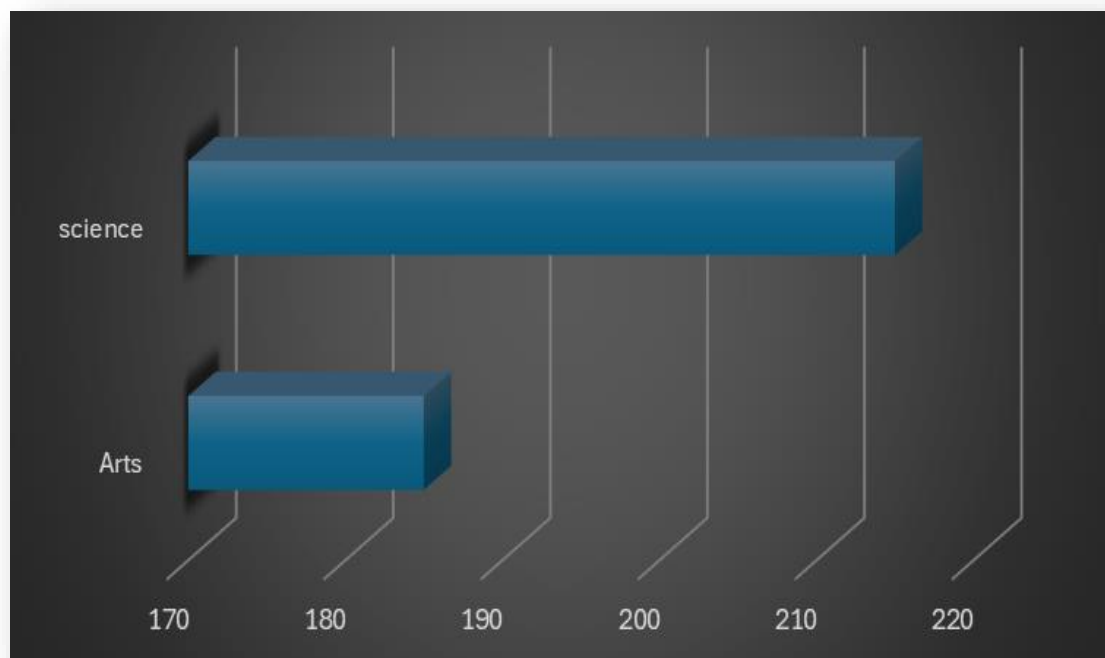
Figure 3.8*Distribution of the sample based on the Optional subject*

Table 3.11*Distribution of the sample based on average daily smartphone usage*

<i>Average daily smartphone use</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Less than 1 hour	64	16.0%	16.0%
3-5 HOURS	101	25.3%	41.3%
1-2 HOURS	156	39.0%	80.3%
More than 5 hours	79	19.8%	100.0%

From Table 3.11, it is clear that the sample consists of prospective teachers using smartphones for less than 1 hour (64), 3–5 hours (101), 1–2 hours (156), and more than 5 hours (79) daily. The percentages corresponding to less than 1 hour, 3–5 hours, 1–2 hours, and more than 5 hours are 16.0%, 25.3%, 39.0%, and 19.8%, respectively.

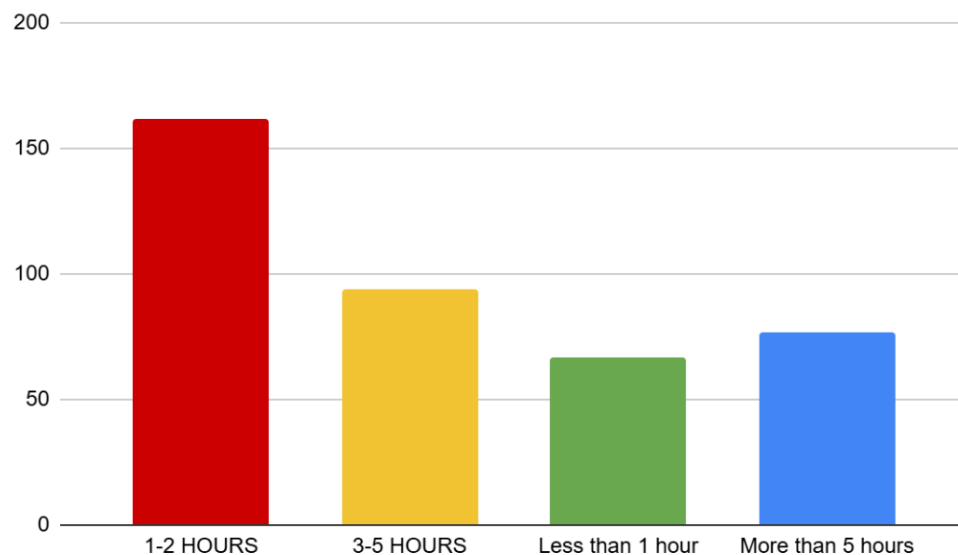
Figure 3.9*Distribution of the sample based on average daily smartphone use*

Table 3.12*Distribution of the sample based on time spent on social media*

<i>Time spent on social media</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
1- 2 hours	131	32.8%	32.8%
2-4 hours	93	23.3%	56.0%
Less than 1 hour	137	34.3%	90.3%
More than 4 hours	39	9.8%	100.0%

From Table 3.12, it is clear that the sample consists of prospective teachers spending 1–2 hours (131), 2–4 hours (93), less than 1 hour (137), and more than 4 hours (39) on social media. The percentages corresponding to 1–2 hours, 2–4 hours, less than 1 hour, and more than 4 hours are 32.8%, 23.3%, 34.3%, and 9.8% respectively.

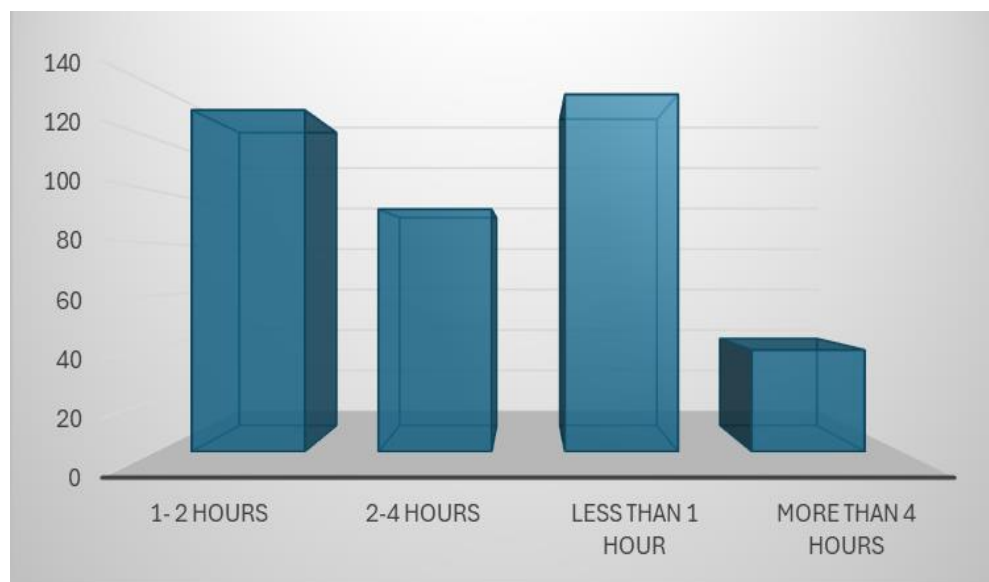
Figure 3.10*Distribution of the sample based on time spent on social media*

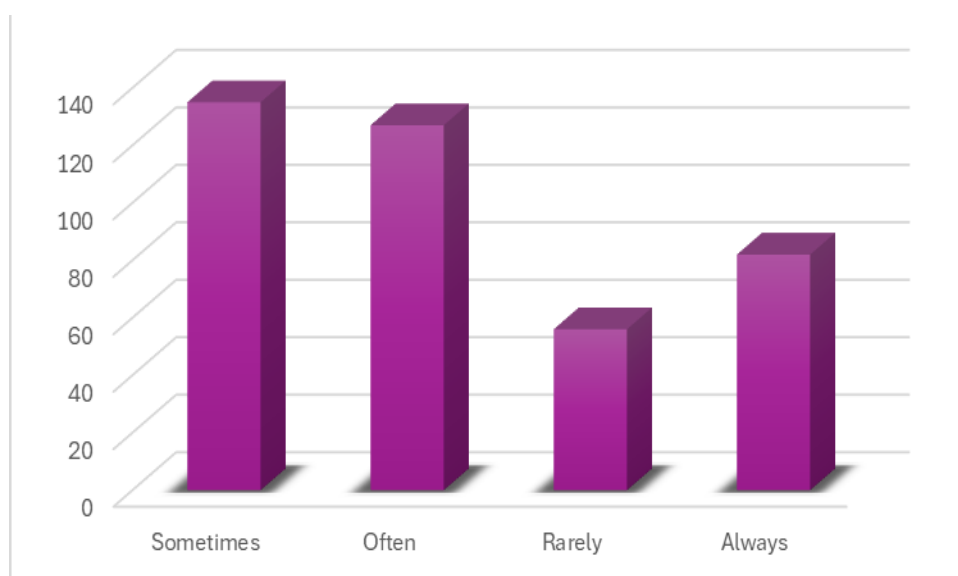
Table 3.13

<i>Distribution of the sample based on smartphone use for academic purposes</i>			
<i>Frequency of smartphone use for academic purposes</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
Sometimes	135	33.8%	33.8%
Often	127	31.8%	65.5%
Rarely	56	14.0%	79.5%
Always	82	20.5%	100.0%

From Table 3.13, it is clear that the sample consists of prospective teachers who use smartphones for academic purposes sometimes (135), often (127), rarely (56), and always (82). The corresponding percentages for sometimes, often, rarely, and always are 33.8%, 31.8%, 14.0%, and 20.5%, respectively. This indicates that a majority of prospective teachers use smartphones for academic purposes either sometimes or often.

Figure 3.11

Distribution of the sample based on smartphone use for academic purposes



3.8 Statistical techniques used for the study

Statistical Techniques are very important for any research. The relevant statistical techniques help the investigator to analyse and interpret the data meaningfully in the study. In the present study, the investigator used the following statistical techniques.

- Percentage Analysis
- Test of significance (t-test)
- ANOVA
- Post Hoc Analysis
- Pearson Product-Moment Correlation

Percentage Analysis

A percentage is used for the comparative study of fractions. It always represents for per hundred and is always calculated on 100. The following are the levels of percentage analysis.

- High level refers to the scores equal to or greater than (Mean + 1 SD)
- Low level refers to the scores equal to or less than (Mean- 1 SD)
- The in-between scores are at the average level.

Test of significance (t-test)

The t-test was used to determine the significance of difference between two groups. The significance of difference was identified based on the mean and standard deviation scores. In the present study, the t-test analysis was carried out using jamovi statistical software. If the obtained t-value is 2.58 or above, the difference is significant at the 0.01 level. If the obtained t-value lies between 1.96 and 2.58, the difference is

significant at the 0.05 level. If the t-value is less than 1.96, the difference is considered not significant. The formula for calculating the t-value is given by

$$t = \frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

Where,

m_1 = Mean of the first sample

m_2 = Mean of the second sample

σ_1 = Standard deviation of first sample

σ_2 = Standard deviation of the second sample Type equation here.

N_1 = Total number of frequencies of first samples

N_2 = Total number of frequencies of the second sample

ANOVA

The F-test or Analysis of Variance (ANOVA) is an extension and improvement over the t-test. This statistical technique was developed by R. A. Fisher in 1923. ANOVA is widely used in educational and social science research to determine the significance of differences among the means of two or more groups. The composite procedure used for testing the differences between several sample means is known as Analysis of Variance (ANOVA). In the present study, ANOVA was carried out using Jamovi statistical software.

The obtained F-value was tested for significance at the 0.05 and 0.01 levels. If the calculated F-value exceeded the table value at the respective level, the difference among the group means was considered significant.

The formula for calculating the F-ratio is given below:

$$F = \frac{\text{Mean square variance between groups}}{\text{Mean square variance within groups}}$$

Where:

- Variance Between Groups = Variation due to differences among group means
- Variance Within Groups = Variation due to individual differences within groups

Post Hoc Analysis

Post hoc analysis is carried out after obtaining a significant F-ratio in Analysis of Variance (ANOVA). It is used to identify the specific groups between which significant differences exist. While ANOVA indicates the presence of significant differences among the group means, post hoc analysis helps in locating the exact pairs of groups that differ significantly.

In the present study, post hoc analysis was performed using Jamovi statistical software. Among the various post hoc techniques, Scheffe's test was employed to compare the group means because it is considered one of the most reliable multiple comparison procedures.

The post hoc analysis compares the mean differences between all possible pairs of groups and determines whether the obtained differences are statistically significant at the selected level of significance.

Pearson's Product-Moment Correlation

Pearson's Product-Moment Method (PPMM) is one of the most widely used and accurate methods for calculating the coefficient of correlation. This method was developed by Karl Pearson. Correlation analysis is used to determine the degree and

direction of the relationship between two variables. The most popular technique for studying the relationship between one variable and another is simple correlation analysis.

In the present study, Pearson's Product-Moment Correlation analysis was carried out using Jamovi statistical software.

$$r = \frac{N \sum xy - \sum x \sum y}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}}$$

Where:

- $\sum X$ = Sum of X scores
- $\sum Y$ = Sum of Y scores
- $\sum X^2$ = Sum of squared X scores
- $\sum Y^2$ = Sum of squared Y scores
- $\sum XY$ = Sum of the products of paired X and Y scores
- N = Number of paired scores

Verbal interpretation of r

Cronbach's alpha range	Interpretation
$\alpha \geq 0.9$	Excellent internal consistency
$0.8 \leq \alpha < 0.9$	Good internal consistency
$0.7 \leq \alpha < 0.8$	Acceptable internal consistency
$0.6 \leq \alpha < 0.7$	Questionable internal consistency
$0.5 \leq \alpha < 0.6$	Poor internal consistency
$\alpha < 0.5$	Unacceptable internal consistency

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

4.2 DIFFERENTIAL ANALYSIS

4.3 CORRELATIONAL ANALYSIS

CHAPTER-4

DATA ANALYSIS AND INTERPRETATION

Analysis and interpretation of data is one of the important steps in the research process. Analysis of data means studying the tabulated material in order to determine inherent facts or meanings. After analysing the data, the researcher has to accomplish the task of drawing inferences. Interpretation refers to the task of drawing inferences from the collected facts after an analytical study. Interpretation is essential for the simple reason that the usefulness and utility of research findings lie in proper interpretation. Thus, data analysis and interpretation is the devices through which the factors that seem to explain what has been observed by researchers in the course of the study can be better understood, and it also provides a theoretical conception which can serve as a guide for further researchers. Data analysis is the most crucial part of any research.

Data analysis summarises the collected data. It involves the interpretation of data gathered through the use of analytical and logical reasoning to determine patterns, relationships or trends. The result of the analysis, along with interpretation, is presented in this chapter.

4.1 Percentage analysis

Table 4.1

Percentage distribution of different levels of smartphone usage

<i>Smartphone Usage</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
H	85	21.3%	21.3%
M	275	68.8%	90.0%
L	40	10.0%	100.0%

From the table, it is clear that 68.8% of prospective teachers have a medium level of smartphone use, 21.3% have a high level, and 10.0% have a low level. This indicates that most prospective teachers possess a moderate level of smartphone usage.

Figure 4.1

Percentage distribution of the Smartphone usage

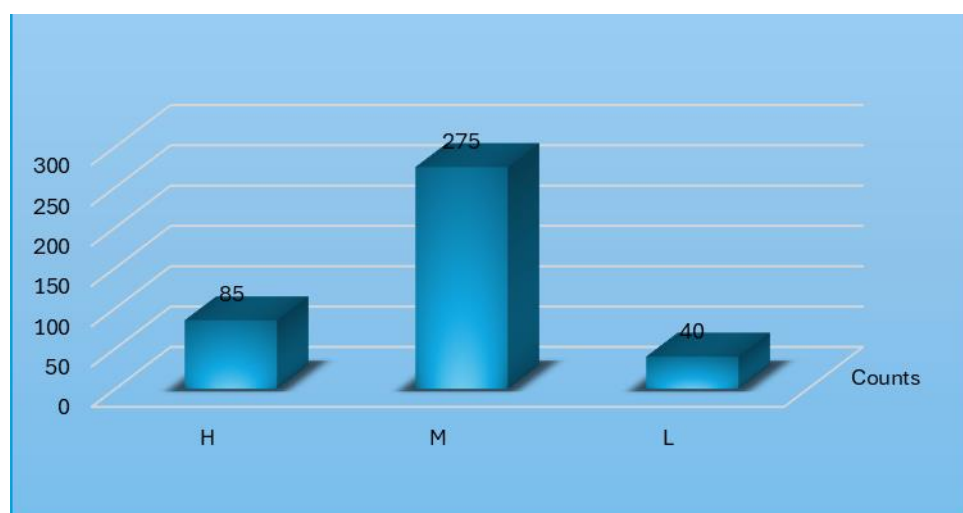
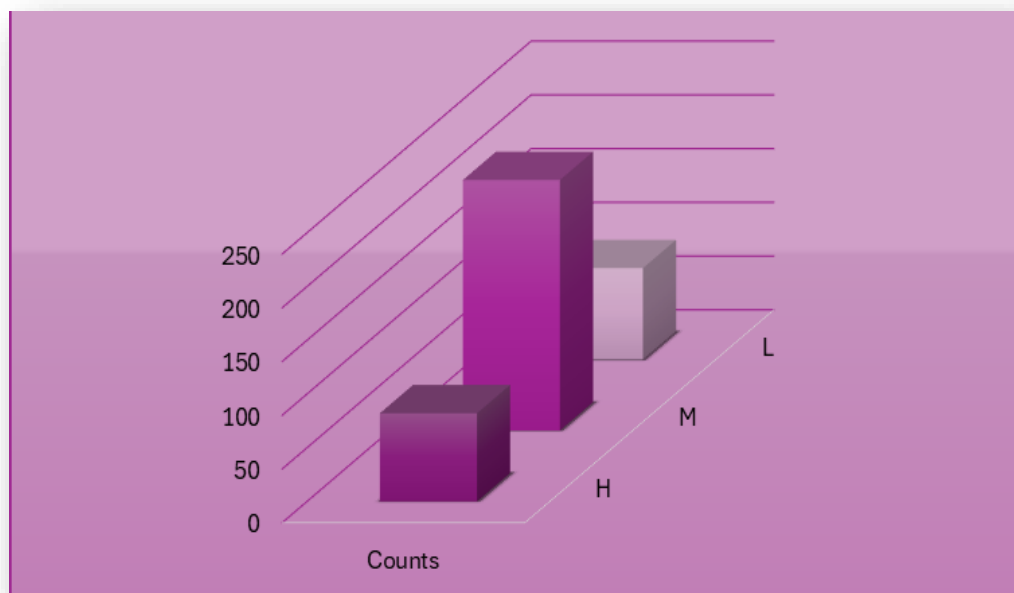


Table 4.2*Percentage distribution of different levels of the Academic Procrastination*

<i>Academic Procrastination</i>	<i>Counts</i>	<i>% of Total</i>	<i>Cumulative %</i>
H	82	20.5%	20.5%
M	233	58.3%	78.8%
L	85	21.3%	100.0%

From the table, it is clear that 58.3% of prospective teachers have a medium level of academic procrastination, 21.3% have a low level, and 20.5% have a high level of academic procrastination. This indicates that the majority of prospective teachers possess a moderate level of academic procrastination.

Figure 4.2*Percentage distribution of the Academic Procrastination*

4.2 Differential analysis

Comparison based on background variables

Null hypothesis-1

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on the locality of the institution

Table 4.3

Comparison of Smartphone Usage of prospective teachers based on the Locality of Institution.

<i>Locale</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Urban	152	17.4	145	2.05	0.042	Significant
Rural	148	17.2	255			

From Table 4.3, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence the null hypothesis is rejected. From the table it is clear that urban prospective teachers have higher smartphone usage than rural prospective teachers.

Null hypothesis—2

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on marital status.

Table 4.4

Comparison of Smartphone Usage of prospective teachers based on Marital status

<i>Locale</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Married	113	17.5	113	2.38	0.018	Significant
Single	150	17.2	287			

From Table 4.4, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that single prospective teachers have higher smartphone usage than married prospective teachers.

Null hypotheses- 3

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on year of study

Table 4.5

Comparison of Smartphone Usage of prospective teachers based on year of study

<i>Year of study</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
B.Ed. first year	154	17.4	171	2.07	0.039	Significant
B.Ed. second year	150	17.2	229			

From Table 4.5, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the table, it is clear that B.Ed. first-year prospective teachers have higher smartphone usage than B.Ed. second-year prospective teachers.

Null hypotheses- 4

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on type of institution

Table 4.6

Comparison of Smartphone Usage of prospective teachers based on type of institution

<i>Type of institution</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Self-financing	153	18.1	335	3.61	0.01	Significant
Aided	145	10.9	65			

From Table 4.6, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the table, it is clear that self-financing prospective teachers have higher smartphone usage than aided prospective teachers.

Null hypotheses -5

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on their fathers' educational qualifications

Table 4.7

Comparison of Smartphone Usage of prospective teachers based on their fathers' educational qualifications

<i>Father's Educational qualification</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Below SSLC	151	16.8	Between groups	420	2	210	0.695	0.500	Not significant
Degree and above	152	17.4	Within groups	119955	397	302			
SSLC and above	153	18.1	Total	120375	399				

From Table 4.7, it is clear that $p > 0.05$ and it is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, smartphone usage among prospective teachers does not significantly differ with respect to the father's educational qualification.

Null hypotheses -6

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on their mother's educational qualification

Table 4.8

Comparison of Smartphone Usage of prospective teachers based on their mothers' educational qualification

<i>Mother's Educational qualification</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Below SSLC	144	17.4	Between groups	237	2	118			
Degree and above	164	18.1	Within groups	120138	397	303	0.391	0.676	Not significant
SSLC and above	92	16.0	Total	120375	399				

From Table 4.8, it is clear that $p > 0.05$, and it is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, smartphone usage among prospective teachers does not significantly differ with respect to the mother's educational qualification.

Null hypotheses -7

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on their age

Table 4.9

Comparison of Smartphone Usage of prospective teachers based on their age

<i>Age</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Above 25 years	88	17.5	Between groups	458	2	229	0.758	0.469	Not significant
20-22 years	117	17.8	Within groups	119917	397	302			
23-25 years	195	17.1	Total	120375	399				

From the table 4.9, it is clear that $p > 0.05$ and it is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, smartphone usage among prospective teachers does not significantly differ with respect to age.

Null hypotheses -8

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on their optional subject

Table 4.10

Comparison of Smartphone Usage of prospective teachers based on the optional subject

<i>Optional subject</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Arts	161	16.6	185	11.2	0.01	Significant
science	144	13.7	144			

From the table 4.10, it is clear that $p < 0.05$ and is significant at the 0.05 level. Hence, the null hypothesis is rejected. From the mean scores, it is clear that Arts prospective teachers have higher smartphone usage than Science prospective teachers.

Null hypotheses -9

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on the average smartphone usage

Table 4.11

Comparison of Smartphone Usage of prospective teachers based on the average daily smartphone usage

<i>Average daily smartphone usage</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Less than 1 hour	150	18.5	Between groups	1674	3	558	1.86	0.136	Not significant
3-5 hours	149	16.5	Within groups	118701	396	300			
1-2 hours	153	16.2	Total	120375	399				
More than 5 hours	154	19.4							

From Table 4.11, it is clear that $p > 0.05$ and is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, smartphone usage among prospective teachers does not differ significantly with respect to average daily smartphone usage.

Null hypotheses -10

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on the time spent on social media

Table 4.12

Comparison of Smartphone Usage of prospective teachers based on the time spent on social media

<i>Time spent on social media</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
1-2 hours	152	14.2	Between groups	2393	3	798	2.68	0.047	Significant
2-4 hours	144	16.0	Within groups	117982	396	298			
Less than 1 hour	153	19.3	Total	120375	399				
More than 4 hours	146	21.4							

From Table 4.12, it is clear that $*p* < 0.05$ and is significant at the 0.05 level. Hence, the null hypothesis is rejected. From the mean scores, it is clear that prospective teachers who use social media for less than 2 hours have higher smartphone usage than those who use it for 1–2 hours, 2–4 hours, and more than 4 hours.

Table 4.13

Comparison of Scheffe's Smartphone Usage of prospective teachers based on time spent on social media

<i>Time spent on social media</i>	<i>N</i>	<i>Pair</i>	<i>P</i> <i>(Scheffe)</i>	<i>Remark</i>
1-2 hours (A)	131	A vs B	0.526	Not significant
Less than 1 hour(B)	137	A vs C	0.622	Not significant
More than 4 hours (C)	39	A vs D	0.928	Not significant
2-4 Hours	93	B vs C	0.062	Not significant
		B vs D	0.982	Not significant
		C vs D	0.479	Not significant

From Table 4.13, it is clear that the smartphone usage of prospective teachers with 1–2 hours and less than 1 hour of social media usage does not differ significantly at the 0.05 level. Similarly, prospective teachers with 1–2 hours and more than 4 hours, 1–2 hours and 2–4 hours, less than 1 hour and more than 4 hours, less than 1 hour and 2–4 hours, and more than 4 hours and 2–4 hours of social media usage also do not differ significantly in smartphone usage.

Null hypotheses -11

There exists no significant difference in the mean scores of smartphone usage among prospective teachers based on the time spent on social media

Table 4.14

Comparison of Smartphone Usage of prospective teachers based on the frequency of smartphone use for academic purposes

<i>Frequency of smartphone use for academic purposes</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Always	147	10.9	Between groups	20615	3	6872	27.3	0.001	Significant
Rarely	155	14.6	Within groups	99759	396	252			
Sometimes	160	19.9	Total	120374	399				
Rarely	143	14.6							

From Table 4.14, it is clear that $p < 0.05$, and it is significant at the 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that prospective teachers who rarely use smartphones have higher smartphone usage than those who always, often, or sometimes use smartphones.

Table 15

Comparison of Scheffe's Smartphone Usage of prospective teachers based on Frequency of smartphone use for academic purposes

Frequency of smartphone use for academic purposes	N	Pair	P (Scheffe)	Remark
Always (A)	82	A vs B	0.354	Not significant
Often (B)	127	A vs C	0.001	Significant
Sometimes(A)	135	A vs D	0.001	Significant
Rarely (C)	56	B vs C	0.001	Significant
		B vs D	0.291	Not significant
		C vs D	0.046	Significant

From the table 15, it is clear that the smartphone usage of prospective teachers who Always and Often use smartphones for academic purposes do not differ significantly. The groups Always and Sometimes, Always and Rarely, Often and Sometimes, and Sometimes and Rarely significantly differ. The groups Often and Rarely do not differ significantly.

Null hypothesis-12

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on the locality of the institution

Table 4.16

*Comparison of academic procrastination of prospective teachers
based on their locale*

<i>Locale</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Rural	135	15.0	145	2.13	0.034	Significant
Urban	131	16.0	255			

From Table 4.16, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the mean score it is clear that urban prospective teachers have higher academic procrastination than rural prospective teachers.

Null hypothesis-13

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on the locality of the institution

Table 4.17

*Comparison of academic procrastination of prospective teachers
based on their marital status*

<i>Marital status</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Married	134	16.2	113	1.22	0.223	Not significant
Single	132	15.5	287			

From Table 4.17, it is clear that $p > 0.05$ and is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, academic procrastination among prospective teachers does not differ significantly with respect to marital status.

Null hypothesis-14

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their year of study

Table 4.18

*Comparison of academic procrastination of prospective teachers
based on their year of study*

<i>Year of study</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
B.Ed. first year	136	14.9	171	3.61	0.001	Significant
B.Ed. second year	130	15.9	229			

From Table 4.18, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that B.Ed. first-year prospective teachers have higher academic procrastination than B.Ed. second-year prospective teachers.

Null hypothesis -15

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their type of institution

Table 4.19

*Comparison of academic procrastination of prospective teachers
based on their type of institution*

<i>Type of institution</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Self-financing	134	15.2	335	5.59	0.001	Significant
Aided	125	14.6	65			

From Table 4.19, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the mean score it is clear that prospective teachers studying in self-financing institutions have higher academic procrastination than those studying in aided institutions.

Null hypothesis-16

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their mothers' educational qualifications

Table 4.20

Comparison of academic procrastination among prospective teachers based on their mothers educational qualification

<i>Mothers' educational qualification</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Below SSLC	136	15.1	Between groups	3190	2	1595	6.66	0.01	Significant
SSLC and above	130	15.6	Within groups	95112	397	240			
Degree and above	132	15.9	Total	98302	399				

From Table 4.20, it is clear that $p < 0.05$ and is significant at the 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that prospective teachers whose mothers have qualifications below SSLC exhibit higher academic procrastination than those whose mothers have higher qualifications.

Table 4.21

Comparison of Scheffe's academic procrastination among prospective teachers based on for mothers' educational qualifications

Mothers' educational qualifications	<i>N</i>	<i>Pair</i>	<i>P</i> (Scheffe)	<i>Remark</i>
Below SSLC	144	A vs B	0.001	Significant
SSLC and above	164	A vs C	0.220	Not significant
Degree and above	92	B vs C	0.370	Not significant

From the table 4.21, it is clear that the prospective teachers with mothers' educational qualification Below SSLC and SSLC and above significantly differ. The groups Below SSLC and Degree and above, and SSLC and above and Degree and above do not differ significantly.

Null hypothesis-17

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their fathers' educational qualifications

Table 4.22

Comparison of academic procrastination among prospective teachers based on for fathers' educational qualifications

<i>Fathers' educational qualifications</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Below SSLC	134	15.4	Between groups	869	2	435	1.77	0.171	Not significant
SSLC and above	131	16.1	Within groups	97433	397	245			
Degree and above	132	15.8	Total	98302	399				

From Table 4.22, it is clear that $p > 0.05$ and is not significant at the 0.05 level. Hence, the null hypothesis is accepted. Therefore, academic procrastination among prospective teachers does not differ significantly with respect to fathers' educational qualifications.

Null hypothesis-18

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their age

Table 4.23

*Comparison of academic procrastination among prospective teachers
based on their age*

<i>Age</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
20-22 years	136	16.0	Between groups	1769	2	884	3.64	0.027	Significant
23-25 years	133	15.3	Within groups	96533	397	243			
Above 25 years	131	15.6	Total	98302	399				

From Table 4.23, it is clear that $p < 0.05$ and is significant at 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that prospective teachers in the age group of 23–25 years have higher academic procrastination than prospective teachers above 25 years.

Table 24

*Comparison of Scheffe's academic procrastination among prospective teachers
based on their age*

<i>Age</i>	<i>N</i>	<i>Pair</i>	<i>P</i> <i>(Scheffe)</i>	<i>Remark</i>
20-22 years	144	A vs B	0.451	Not significant
23-25 years	164	A vs C	0.031	Significant
Above 25 years	92	B vs C	0.384	Not significant

From Table 24, it is clear that the prospective teachers in the age groups 20–22 years and 23–25 years do not differ significantly. The age groups 20–22 years and above 25 years significantly differ. The age groups 23–25 years and above 25 years do not differ significantly.

Null hypothesis-19

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their optional subjects

Table 4.25

Comparison of academic procrastination among prospective teachers based on their optional subjects

<i>Optional subject</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Remark</i>
Arts	136	15.8	185	4.37	0.001	Significant
Science	129	14.9	215			

From Table 4.25, it is clear that $p < 0.05$ and is significant at the 0.05 level. Hence, the null hypothesis is rejected. From the mean score, it is clear that there is a significant difference in academic procrastination of prospective teachers based on their optional subject. The prospective teachers from Arts stream have higher academic procrastination than those from science stream.

Null hypothesis-20

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their average daily smartphone usage

Table 4.26

Comparison of academic procrastination among prospective teachers based on their optional subject

<i>Average daily smartphone usage</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Less than 1 hour	133	16.5	Between groups	1637	3	646	2.65	0.048	Significant
1-2 hours	129	16.0	Within groups	96365	396	243			
3-5 hours	133	15.9	Total	98002	399				
More than 5 hours	135	13.6							

From Table 4.26, it is clear that $p < 0.05$, indicating significance at the 0.05 level. Hence, the null hypothesis is rejected. From the mean scores it is clear that prospective teachers who use smartphones for 3–5 hours daily exhibit higher academic procrastination than those who use smartphones for 1–2 hours or more than 5 hours daily

Table 27

*Comparison of Scheffe's academic procrastination among prospective teachers
based on average daily smartphone usage*

<i>Average daily smartphone usage</i>	<i>N</i>	<i>Pair</i>	<i>P (Scheffe)</i>	<i>Remark</i>
Less than 1 hour(A)	64	A vs B	0.317	Not significant
3-5 hours	101	A vs C	0.997	Not significant
1-2 hours	156	A vs D	0.857	Not significant
More than 5 hours	79	B vs C	0.222	Not significant
		B vs D	0.035	Significant
		C vs D	0.641	Not significant

From the table 27 , it is clear that the prospective teachers with average daily smartphone usage of Less than 1 hour and 3–5 hours, Less than 1 hour and 1–2 hours, Less than 1 hour and More than 5 hours, 3–5 hours and 1–2 hours, and 1–2 hours and More than 5 hours do not differ significantly. The groups 3–5 hours and More than 5 hours significantly differ.

Null hypothesis-21

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their time spent on social media.

Table 4.28

Comparison of academic procrastination among prospective teachers based on their

time spent on social media

<i>Time spent on social media</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Less than 1 hour	134	16.1	Between groups	784	3	261	1.06	0.365	Not significant
1-2 hours	133	16.0	Within groups	97518	396	246			
2-4 hours	131	14.2	Total	98302	399				
More than 4 hours	130	16.5							

From Table 4.28, it is clear that $p > 0.05$ and is not significant at 0.05 level.

Hence, the null hypothesis is accepted. Therefore, academic procrastination among prospective teachers does not differ significantly with respect to time spent on social media.

Null hypothesis-22

There exists no significant difference in the mean scores of academic procrastination among prospective teachers based on their frequency of smartphone use for academic purposes

Table 4.29

Comparison of academic procrastination among prospective teachers based on the Frequency of smartphone use for academic purpose

<i>Frequency of smartphone use for academic purpose</i>	<i>Mean</i>	<i>SD</i>	<i>Source</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>P</i>	<i>Remarks</i>
Always	126	15.1	Between groups	6703	3	2234	9.66	0.001	Significant
Often	132	16.4	Within groups	91599	396	231			
Sometimes	137	14.3	Total	98302	399				
Rarely	132	14.7							

From Table 4.29, it is clear that $p > 0.05$ and is not significant at the 0.05 level. Hence, the null hypothesis is accepted. From the mean scores, it is clear that prospective teachers who use smartphones sometimes have higher smartphone usage compared to those who always, often, and rarely use smartphones

Table 4.30

Comparison of Scheffe's academic procrastination prospective teachers based on the frequency of smartphone use for academic purposes

<i>Frequency of smartphone use for academic purposes</i>	<i>N</i>	<i>Pair</i>	<i>P (Scheffe)</i>	<i>Remark</i>
Always (A)	82	A vs B	0.053	Not Significant
Often (B)	127	A vs C	0.044	Significant
Sometimes(A)	135	A vs D	0.001	Significant
Rarely (C)	56	B vs C	1.000	Not significant
		B vs D	0.186	Not significant
		C vs D	0.155	Not significant

From the table 30, it is clear that the prospective teachers who Always and Often use smartphones for academic purposes do not differ significantly. The groups Always and Often, Often and Rarely, Often and Sometimes, and Rarely and Sometimes do not differ significantly. The groups Always and Rarely and Always and Sometimes significantly differ.

4.3 Correlational Analysis

Null hypothesis-23

There exists no significant correlation between smartphone use and academic procrastination of prospective teachers in total, nor in the sub-samples.

Table 4.31

Relationship between smartphone use and academic procrastination of prospective teachers in total

<i>Pearson correlation</i>	<i>p</i>	<i>Remarks</i>
0.242	0.001	Significant

From Table 4.31, the correlation matrix, it is clear that for the total sample, $p < 0.005$, therefore significant at the 0.05 level. Hence, the null hypothesis is rejected. There is significant positive low correlation between smartphone use and academic procrastination among prospective teachers ($r = 0.242$). This indicates that an increase in smartphone usage is associated with an increase in academic procrastination among prospective teachers.

CHAPTER V

FINDINGS, IMPLICATIONS AND CONCLUSION

5.1 THE STUDY IN RETROSPECT

5.2 OBJECTIVES OF THE STUDY

5.3 HYPOTHESES FRAMED FOR THE STUDY

5.4 METHODOLOGY IN BRIEF

5.5 FINDINGS OF THE STUDY

5.6 EDUCATIONAL IMPLICATIONS OF THE STUDY

5.7 CONCLUSION

5.8 SUGGESTIONS FOR FURTHER RESEARCH

CHAPTER 5

FINDINGS, IMPLICATIONS AND CONCLUSION

5.1 The study in retrospect

This chapter presents a brief report of the study in retrospect. The investigator obtained conclusions and valid inferences based on the statistical analysis of collected data. The study under investigation is entitled “*Academic procrastination among prospective teachers in relation to smartphone usage*”. This chapter attempts to summarise all the findings, conclusions and suggestions drawn from the present investigation.

5.2 Objectives of the study

1. To find the level of smartphone usage among prospective teachers.
2. To find the level of academic procrastination among the prospective teachers.
3. To find the significant differences in smartphone usage among prospective teachers based on locale, marital status, fathers' educational qualification, mother's educational qualification, age, programme and year of study, optional subject, type of institution, average daily smartphone usage, time spent on social media, frequency of smartphone usage for academic purposes
4. To find the significant difference in academic procrastination among prospective teachers based on locale, marital status, fathers' educational qualification, mothers' educational qualification, age, programme and year of study, optional subject, type of institution, average daily smartphone usage, time spent on social media, frequency of smartphone usage for academic purposes
5. To find the correlation between smartphone usage and academic procrastination of prospective teachers.

5.3 Hypotheses framed for the study

1. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on locale
2. There exists a significant difference in the mean scores of smart phone usage among prospective teachers based on marital status
3. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the father's qualification
4. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the mother's qualification
5. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on their age
6. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on programme and year of study
7. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on their optional subject
8. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the type of institution
9. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on average daily smartphone usage
10. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the time spent on social media
11. There exists a significant difference in the mean scores of smartphone usage among prospective teachers based on the frequency of smartphone use for academic purposes
12. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on time spent on social media

13. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on average daily smartphone usage
14. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the type of institution
15. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the fathers' qualifications
16. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the mothers' qualifications
17. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on marital status
18. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on their optional subjects
19. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on programme and year of study
20. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on age
21. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on locale
22. There exists a significant difference in the mean scores of academic procrastination among prospective teachers based on the frequency of smartphone use for academic purposes
23. There will be a significant correlation between smartphone usage and academic procrastination of prospective teachers.

5.4 Methodology in brief

A normative survey method was adopted for conducting the study. The present study was conducted on a sample of 400 prospective teachers studying in various colleges of education from Kanniyakumari district using a simple random sampling technique. The tools used for the present study were the smartphone usage scale and the academic procrastination scale. For the analysis of the data, the following statistical techniques were used: percentage analysis, independent sample t-test for large sample, ANOVA followed by post hoc, Carl Pearson product-moment correlation coefficient.

5.5 Findings of the study

1. There existed a medium level of smartphone usage among the prospective teachers, followed by a high level and a low level. This indicated that most prospective teachers possessed a moderate level of smartphone usage.
2. There existed a medium level of academic procrastination among the majority of prospective teachers, followed by a low level and a high level. This indicated that most of the prospective teachers possessed a moderate level of academic procrastination.
3. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on locale. The mean scores revealed that urban prospective teachers had higher smartphone usage than rural prospective teachers.
4. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on marital status. The mean scores revealed that single prospective teachers had higher smartphone usage than married prospective teachers.

5. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on programme and year of study. The mean scores revealed that B.Ed. first-year prospective teachers had higher smartphone usage than B.Ed. second-year prospective teachers.
6. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on optional subject. The mean scores revealed that Arts prospective teachers had higher smartphone usage than Science prospective teachers.
7. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on the type of institution. The mean scores revealed that self-financing prospective teachers had higher smartphone usage than aided prospective teachers.
8. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on time spent on social media. The mean scores revealed that prospective teachers who use social media for less than 2 hours had higher smartphone usage than those who use it for 1–2 hours, 2–4 hours, and more than 4 hours.
9. There existed a significant difference in the mean scores of smartphone usage among prospective teachers based on the frequency of smartphone use for academic purposes. The mean scores revealed that prospective teachers who rarely use smartphones had higher smartphone usage than those who always, often, or sometimes use smartphones.
10. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on average daily smartphone usage. The mean scores revealed that prospective teachers who use smartphones

for 3–5 hours daily exhibited higher academic procrastination than those who use smartphones for 1–2 hours or more than 5 hours daily.

11. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on the type of institution. The mean scores revealed that students in self-financing institutions had higher academic procrastination than those studying in aided institutions.
12. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on mothers' qualifications. The mean scores revealed that prospective teachers whose mothers had qualifications below SSLC exhibited higher academic procrastination than those whose mothers had higher qualifications.
13. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on optional subject. The mean scores revealed that Arts stream prospective teachers had higher academic procrastination than those from the Science stream.
14. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on programme and year of study. The mean scores revealed that B.Ed. first-year prospective teachers had higher academic procrastination than B.Ed. second-year prospective teachers.
15. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on age. The mean scores revealed that prospective teachers in the age group of 23–25 years had higher academic procrastination than those above 25 years.
16. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on locale. The mean scores

revealed that urban prospective teachers had higher academic procrastination than rural prospective teachers.

17. There existed a significant difference in the mean scores of academic procrastination among prospective teachers based on frequency of smartphone use for academic purposes. The mean scores revealed that prospective teachers who sometimes use smartphones had higher academic procrastination than those who always, often, and rarely use smartphones.
18. There existed a positive low correlation between smartphone usage and academic procrastination of prospective teachers. The result revealed that an increase in smartphone usage was associated with a slight increase in academic procrastination among prospective teachers.

5.6 Educational implications of the study

1. The findings highlight the importance of integrating technology into the curriculum to promote the appropriate and productive use of smartphones. Postgraduate prospective teachers utilise smartphones more for research, dissertations, and academic papers, while undergraduate prospective teachers depend on them for communication and basic learning. Prospective teachers from the arts stream could be encouraged to use smartphones appropriately for academic and research tasks.
2. Blended learning approaches enhance smartphone usage in both online and offline instructional contexts. Teacher education programmes could incorporate Blended learning approaches in the curriculum and raise the prospective teachers' awareness of cybersecurity safety and the risks of cyber scans, cyber bullying, harassment, and data theft, thereby preparing them to educate their future students on the appropriate and safe use of smartphones

3. Teacher education programmes should create awareness among prospective teachers regarding the proper and balanced use of smartphones in academic and personal life. Institutions should provide training on time management, self-regulation, and study skills habits to reduce academic procrastination among prospective teachers.
4. Prospective teachers should be guided to use smartphones mainly for productive and educational purposes rather than for excessive non-academic activities. Teacher educators should encourage students to develop disciplined learning practices and avoid distractions caused by excessive smartphone usage. Educational institutions should organise workshops and counselling programmes on digital wellbeing and responsible smartphone usage.
5. Strategies such as setting study schedules, limiting screen time, and maintaining academic priorities should be promoted among prospective teachers. Institutions should provide awareness about the negative effects of excessive smartphone usage on academic performance and learning behaviour. Teacher education programmes should include activities that promote concentration, motivation, and effective learning habits to minimise academic procrastination.

5.7 CONCLUSION

In the present study, prospective teachers were found to have moderate levels of smartphone usage and academic procrastination. The study further revealed a significant positive relationship between smartphone usage and academic procrastination among prospective teachers. This indicates that higher smartphone usage tends to increase the level of academic procrastination.

The study also found that there is no significant difference in smartphone usage among prospective teachers based on their mothers' qualifications. Hence, mothers'

educational qualifications do not significantly influence the smartphone usage behaviour of prospective teachers. Overall, the findings suggest that smartphone usage plays an important role in academic procrastination among prospective teachers, while certain demographic variables may not have a significant impact.

5.8 SUGGESTIONS FOR FURTHER RESEARCH

1. Studies may be conducted to examine the impact of excessive technology use on smartphone usage and academic procrastination among school, college, and university students. Further studies may be undertaken to explore the relationship between smartphone usage and variables such as academic stress, anxiety, self-regulation, study habits, time management, emotional well-being, and academic achievement.
2. Research may be carried out to investigate the positive and educational use of smartphones in online learning, blended learning, collaborative learning, and access to digital educational resources.
3. Experimental studies may be undertaken to assess the effectiveness of awareness programmes, counselling services, digital well-being training, and time-management strategies in reducing unhealthy smartphone usage and academic procrastination.
4. Studies may also be conducted on the influence of social media, gaming applications, and digital entertainment on students' academic engagement, concentration, and learning behaviour.

REFERENCES

REFERENCES

- Abdulmalik, U. I., & Anka, N. A. (2025). The effects of smartphone usage on students' academic performance: Case study of four selected tertiary institutions in North-West Nigeria. *Dutse Journal of Pure and Applied Sciences*, 10(4a), 233–245. <https://doi.org/10.4314/dujopas.v10i4a.23>
- Ackerman D.S. & Gross B.L. (2005). My instructor made me do it: Task characteristics of procrastination. *Journal of Marketing Education*, 27(1), 5-13.
- Alphana Vaidya, Vinayak Pathak and Ajay Vaidya (2016) Mobile Phone usage among Youth. *International Journal of Applied Research and Studies*, 5 (3), 1- 16.
- Alvia, I., Saparahayuningsih, S., & Sinthia, R. (2024). The Corelations of Loneliness with Social Media Addiction to Academic Procrastination in Adolescents. *GCouns: Jurnal Bimbingan dan Konseling*, 8(3), 1363-1374. DOI: <https://doi.org/10.31316/gcouns.v9i1>
- Anwar, M., Anwar, A., & Marwan, A. H. (2022). Impact of social media usage on academic procrastination. *Global Educational Studies Review*, 7(2), 251–262. [https://doi.org/10.31703/gesr.2022\(VII-II\).24](https://doi.org/10.31703/gesr.2022(VII-II).24)
- Azimah, Nurul & Nirwana, Herman. (2026). The Relationship Between Academic Procrastination and Academic Stress Among Students. *TOFEDU: The Future of Education Journal*. 5. 724-732. 10.61445/tofedu.v5i1.1633.
- Binder, K. (2000). The effect of an academic procrastination treatment on student procrastination and subjective well-being. Unpublished MA, Carleton University, Canada.
- Brownlow, S. & Reasinger, R. D. (2000). Putting off until tomorrow what is better done today: Academic procrastination as a function of motivation toward college work. *Journal of Social Behavior and Personality*, 15(5), 15–34. <http://hdl.handle.net/10603/400938>

- Businge Phelix Mbabazi, Guma Ali, Andogah Geoffrey and Nkamwesiga Lawrence (2018). Mobile Devices for Learning in Universities: Challenges and Effects of Usage. *International Journal of Scientific Engineering and Science*, 2 (9), 1-7.
- Cheng Dar, Zixue Tai and Shan Ni (2021) Smartphone use and Psychological Wellbeing Among College students in China: A Qualitative Assessment. *Human-Media Interaction. Front Psychol*, 12, 1-10.
- Collado, Janiella & Vitanzos, Ardrien & Lazaro, Angelica. (2026). The Mediating Effect of Digital Literacy on the Relationship Between Time Management and Academic Procrastination. *International Journal of Research and Innovation in Social Science*. 10. 6949-6968. 10.47772/IJRISS.2026.100300507.
- Deepali R Naidu (2018) A Study on Smart Phone Usage Pattern, Purpose and Preference among College Students. *Indian Journal of Commerce & Management Studies*. 9 (2), 68-99.
- Deniz, M.E., Tras, Z. & Aydogan, D. (2009). An Investigation of Academic procrastination, locus of control, and emotional Intelligence. *Educational Sciences: Theory & Practice*, 9(2), 623-632.
- Ellis, A., & Knaus, W. J. (1977). *Overcoming procrastination*. New York, New American Library. Institute for Rational Living, 152-167. [48]
- Ellis, A., & Knaus, W. J. (1977). *Overcoming Procrastination*. New York: Signet Books.
- Ellis, A. & Knaus, W.J. (1977). *Overcoming procrastination*, New York: Institute for Rational Living.
- Iftikhar, A., Liaquat, A. W., & Shahid, H. (2022). Mediating effect of academic amotivation between smartphone addiction and academic procrastination among university students. *Online Media and Society*, 3, 202–212. <https://doi.org/10.71016/oms/vw457236>

- Jen Chun Wang (2022) The impact of smartphone use on learning effectiveness: A case study of primary school students. *National Library of Medicine*, 28 (6), 6287–6320.
- Jiao, Q.G. & Onwuegbuzie, A.J. (1999, November). I'll go to the library tomorrow, the role of procrastination in library anxiety. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Point Clear, AL.
- Kalia, A.K. & Yadav, M. (2015). *Manuel of Academic Procrastination Scale (APS–KAYM)*, Agra: National Psychological Corporation
- Kaur, N. (2023). Study of academic procrastination among adolescents in relation to anxiety. *International Journal of Science, Engineering and Technology*, 11:3. https://www.ijset.in/wp-content/uploads/IJSET_V11_issue3_395.pdf
- Kaur, A., & Jena, P. C. (2022). A study of academic procrastination and academic anxiety among senior secondary school students. *International Journal of Education and Psychological Research*, 11(1), 1-6. <https://www.ijepr.org/panel/assets/papers/751249ij2.pdf>
- Lakshmavva Gondi and Jayashree Itti (2024) Evaluate Mobile Phone Usage and its Impact on Student Health at Murarji Desai College of Residential Sciences, Bagalkot, SSR Institute of International Journal of Life Sciences, 10 (1), 3477-3483.
- Liu, F., Xu, Y., Yang, T., Li, Z., Dong, Y., Chen, L., & Sun, X. (2022). The Mediating Roles of Time Management and Learning Strategic Approach in the Relationship Between Smartphone Addiction and Academic Procrastination. *Psychology Research and Behavior Management*, 15, 2639–2648. <https://doi.org/10.2147/PRBM.S373095>
- Malla, H. A. (2021). Academic procrastination among secondary school students: exploring the role of smartphone addiction. A mixed method approach. *The Online Journal of Distance Education and e-Learning*, 9(3), 334-340. <https://www.tojdel.net/journals/tojdel/articles/v09i03/v09i03-01.pdf>

- Marmara University, & Akinci, T. (2021). Determination of predictive relationships between problematic smartphone use, self-regulation, academic procrastination and academic stress through modelling. *International Journal of Progressive Education*, 17(1), 35–53. <https://doi.org/10.29329/ijpe.2021.329.3>
- Maryam Amidi (2014) The Use of Mobile Phone Features Among Students in Isfahan University of Medical Sciences in Iran. *Scimetr*, 2 (3), 1-10.
- Monika Yadav and Poonam Malik (2020) Smart phone usage among college going students. *International Journal of Education & Management Studies*, 10 (3), 322-32.
- Moosivand, M., Hayati, M., & Ramezani Torkamani, M. (2022). Predicting depression, anxiety, stress and academic procrastination based on smartphone addiction with emphasis on gender differences in students. *Women's Studies Sociological and Psychological*, 20(2), 66-95. DOI:10.22051/jwsps.2022.38225.2529
- Nebiyu Mengistu (2023) Problematic Smartphone and social media use among undergraduate students during the Covid 19 pandemic: In the case of Southern Ethiopia Universities. *PLOS ONE*, Open access, 1-10.
- Ochs, C., & Sauer, J. (2023). Disturbing aspects of smartphone usage: A qualitative analysis. *Behaviour & Information Technology*, 42(14), 2504–2519. <https://doi.org/10.1080/0144929X.2022.2129092>
- Panwar, S., & Agrawal, V. (2021). Impact of smartphone usage on employee engagement and employee performance in Indian corporate sector. *Journal of Statistics and Management Systems*, 24(3), 633–644. <https://doi.org/10.1080/09720510.2020.1843276>
- Pinky Bhagat, Somipam R and Shimray (2021) Smartphone Usage among University Students during the Covid-19 pandemic: A Study. *Library Philosophy and Practice (e-journal)*, 1-10.

- Problematic Smartphone Use and Academic Procrastination Among Students in Pakistan. (2025). *Journal of Asian Development Studies*, 14(1), 1065-1070. <https://doi.org/10.62345/jads.2025.14.1.85>
- Salimli, Shovkat. (2026). Psychological determinants of academic procrastination tendencies in students. *Scientific bulletin*. 1. 133-138. 10.54414/lsif9758.
- Rashmi Singh, Varsha Sristava and Neha Kumari (2021). Patterns of Smartphone Use Among Young Indians, *Kala Sarovar*, 24, 484-488
- Ruchi Soni, Ritesh Upadhyay and Mahendra Jain (2017). Prevalence of smartphone addiction, sleep quality and associated behaviour problems in adolescents. *International Journal of Research in Medical Sciences*, 5(2), 515-519.
- Satyajit Nayak and Kunwar Singh (2020). Exploring The Usage Pattern Of Smartphone For Academic Pursuit: A Case Study Of Utkal University Academic Pursuit: Lincoln. *Library Philosophy and Practice (e-journal)*, 1-16.
- Sharma, M., Bedi, R., Khanna, M., & Jat, B. L. (2025). The impact of bedtime smartphone usage on sleep quality among undergraduate medical students. *Indian Journal of Sleep Medicine*, 20(1), 1–5. <https://doi.org/10.5005/jp-journals-10069-0148>
- Shruthi C S and Indiramma (2019) Smartphone Usage among College Students - A Comparative Study. *Pramana Research Journal*, 9 (6), 976-981
- Srivastava, Poonam. (2026). To study the relationship between Academic Procrastination and Academic achievement among secondary school students. 2. P210-P215. 10.5281/zenodo.17845043.
- Sourabh Dwivedi (2022) A study on the cell phone usage pattern among the students of Indian institutions. *International Journal of Applied Research*, 8(2), 574-578.

- Sowmya H, Prasanna Kumar Cand Jyothi P S (2020) A Study on Effects of Mobile Phone Use Practice among College Students, Zenodo, Pearl. Library Philosophy and Practice,
- Subba, S. & Chingnunhoih, M. (2023). A Study on Smartphone Addiction and Academic Procrastination Among College Students. *International Journal of Indian Psychology*, 11(1), 1779-1784. DIP:18.01.179.20231101, DOI:10.25215/1101.179ournal, 6 (1), 42-54.
- Saplavaska, J., & Jerkunkova, A. (2018, May). Academic procrastination and anxiety among students. In 17th International Scientific Conference Engineering for Rural Development (pp. 23-25).
- Sindhu and Thulasidharan (2018) Influence of academic procrastination, achievement motivation, and social adjustment on scholastic achievement of children at secondary level. [Doctoral Thesis, Mahatma Gandhi University] Shodhganga.
- Surya Rimal (2018) Pattern of Mobile Phone Use among Students of an Institution. *Journal of Nepal Medical Association*, J Nepal Med Assoc, 56 (209), 522-526.
- Taiwo Amole, Omeiza Agoyi and Fatimah Tsiga-Ahmed (2021) Prevalence, pattern and factors associated with problematic phone use among youths in Kano Metropolis, Nigeria. *Annals of African Medical Research*, 3 (142), 78-83.
- Tayeng, Mumni & Sushant, Kumar & Nayak,. (2026). Determinants of Academic Procrastination and Its Consequences on Academic Life. 14. 697. 10.25215/1401.065.
- Tian, J., Zhao, J., Xu, J., Li, Q., Sun, T., Zhao, C., Gao, R., Zhu, L., Guo, H., Yang, L., Cao, D., & Zhang, S. (2021). Mobile phone addiction and academic procrastination negatively impact academic achievement among chinese medical students. *Frontiers in Psychology*, 12, 758303. <https://doi.org/10.3389/fpsyg.2021.758303>

- Türel, Y. K., & Dokumaci, O. (2022). Use of media and technology, academic procrastination, and academic achievement in adolescence. *Participatory Educational Research*, 9(2), 481–497. <https://doi.org/10.17275/per.22.50.9.2>
- Vahedi, Z., & Saiphoo, A. (2018). The association between smartphone use, stress, and anxiety: A meta-analytic review. *Stress and Health*, 34(3), 347–358. <https://doi.org/10.1002/smi.2805>
- Varalakshmi, M., & Reddy, B.S.K. (2020). Academic procrastination among college students: role of academic anxiety, academic stress and academic selfefficacy. *Indian Journal of Research*, 9(8), 112-115. DOI : 10.36106/paripex
- Verma, M., & Yadav, P. (2026). The impact of workplace incivility on turnover intentions of corporate employees: Buffering effects of emotional intelligence. *International Journal of Applied Management Science*, 18(1), 10069841. <https://doi.org/10.1504/IJAMS.2026.10069841>
- Vivar-Bravo, J., Rojas, L. M., Fuster-Guillen, D., Silva, A., & Ocana-Fernandez, Y. (2021). Academic Procrastination and Anxiety in University Students of Initial Education of Apurimac. *Health Education and Health Promotion*, 9, 455-459. [file:///C:/Users/Hp/Downloads/mdrsjrns-v9n5p455-en%20\(2\).](file:///C:/Users/Hp/Downloads/mdrsjrns-v9n5p455-en%20(2).)
- Wang, T., Seiger, A., Markowetz, A., Andone, I., Błaszczewicz, K., & Penzel, T. (2025). Smartphone usage patterns and sleep behavior in demographic groups: Retrospective observational study. *Journal of Medical Internet Research*, 27, e60423. <https://doi.org/10.2196/60423>
- Wang, Y. (2021). Academic procrastination and test anxiety: A cross-lagged panel analysis. *Journal of Psychologists and Counsellors in Schools*, 31(1), 122– 129. doi:10.1017/jgc.2020.29

- Wilhelmina, Thifal Maida & Nugraha, Aditya. (2026). Smartphone Addiction and Academic Stress: The Mediating Role of Academic Procrastination. *Journal Psikogenesis*.125-137. 10.24854/jps.v13i2.5658.
- Wolters, C.A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology*, 95(1), 179-187.
- Yang, Z., Asbury, K., & Griffiths, M. D. (2019). An exploration of problematic smartphone use among chinese university students: Associations with academic anxiety, academic procrastination, self-regulation and subjective well-being. *International Journal of Mental Health and Addiction*, 17(3), 596–614. <https://doi.org/10.1007/s11469-018-9961-1>
- Zhang J and Zeng Y (2024). Effect of College Students' Smartphone Addiction on Academic Achievement: The Mediating Role of Academic Anxiety and Moderating Role of Sense of Academic Control. *Psychology Research and Behaviour Management*, 17 (6), 933-944.

APPENDICES

APPENDICES

Appendix A : General data sheet (Draft form)

Appendix B : Smartphone Usage Scale (Draft form)

Appendix C : General Data Sheet (final form)

Appendix D : Smartphone Usage Scale (Final form)

Appendix E : Academic Procrastination Scale

Appendix F : Article published by the investigator

Appendix: A**N.V.K.S.D. COLLEGE OF EDUCATION, (AUTONOMOUS) ATTOOR****RE-ACCREDITED BY NAAC WITH 'A++' GRADE****(Affiliated to Tamil Nadu Teacher Education University)****ATTOOR, KANNIYAKUMARI DISTRICT****GENERAL DATA SHEET (DRAFT FORM)****Prepared by****Abisha R T & Dr. Prasad P.S****INSTRUCTIONS**

Certain details regarding you are required for my research purpose. The information given by you will be kept confidential and will be used for the research purpose only.

R.T. Abisha

Name of the student :

Name of the College :

Locale : Rural / Urban

Marital Status : Single / Married

Birth order : First/Second/ Third

Educational Qualification of Parents

Father : BelowS.S.L.C/S.S.L.C&above/Degree &above

Mother : BelowS.S.L.C/ S.S.L.C&above/Degree &above

Age

- Below 20 years
- 20–22 years
- 23–25 years
- Above 25 years

Gender

- Male
- Female
- Other / Prefer not to say

Programme & Year of Study

- B.Ed. – First Year
- B.Ed. – Second Year

Optional Subject

- English
- Mathematics
- Physical Science
- Biological Science
- Social Science
- Commerce
- Computer Science
- Other (Please specify): _____

Type of Institution

- Government
- Aided
- Self-financing / Private

Type of smartphone

- Android
- iOS (iPhone)

Internet access type

- mobile data
- WI-FI
- Both mobile data and Wi-Fi

Average Daily Smartphone Usage

- Less than 1 hour
- 1–3 hours
- 3–5 hours
- More than 5 hours

Purpose of Smartphone Use (Multiple responses allowed)

- Academic purposes
- Communication / Messaging
- Social networking
- Entertainment (Music/OTT/Games)
- Online shopping
- Non-academic browsing (news, blogs, general internet use)
- Other (specify): _____

Time Spent on Social Media (Per Day)

- Less than 1 hour
- 1–2 hours
- 2–4 hours
- More than 4 hours

Frequency of Smartphone Use for Academic Purposes

- Never
- Rarely
- Sometimes
- Often
- Always

Appendix: B**N.V.K.S.D. COLLEGE OF EDUCATION, (AUTONOMOUS) ATTOOR****RE-ACCREDITED BY NAAC WITH 'A++' GRADE****(Affiliated to Tamil Nadu Teacher Education University)****ATTOOR, KANNIYAKUMARI DISTRICT****SMARTPHONE USAGE SCALE****DRAFT FORM****Prepared by****Abisha & Dr. Prasad (2025)****Instructions**

The items of scale are designed to evaluate the smartphone usage of you. The scale consists of seven sections and each section consists of 15 items each. Read the items carefully and mark the responses which is most suitable for you by putting a (✓) mark against five alternatives namely always, frequently, sometimes, rarely, never.

Note: Tick your response in the correct box (✓)

S. No	Statements	Always	Frequently	Some times	Rarely	Never
1	I use social media to share educational resources with my classmates					
2	Social media helps me to stay updated with academic events					
3	I refer both digital and printed study materials through smartphone					
4	I communicate with teachers through social media					

5	I find academic motivation from educational talks.					
6	I can easily switch from social media to academic tasks when needed					
7	I am conscious about how much time I spend on social networking sites.					
8	I use smartphone tools like calendar and notes to organize and plan academic tasks effectively.					
9	I feel restless when I cannot use social media					
10	I do not use smartphone in the prohibited area					
11	I spend more time scrolling through social media than studying					
12	I postpone my assignments because of using social networking apps					
13	Checking social media notifications frequently interrupts my concentration.					
14	I tend to delay my homework while chatting on social apps					
15	Browsing inappropriate material on my smartphone affect with my learning					
16	I use my smartphone for entertainment only after completing my study work.					
17	I used to watch educational videos during my leisure time.					
18	I do not use entertainment apps during my study hours.					
19	I balance my leisure and study time effectively while using my phone.					
20	I use music apps to relax before studying.					

21	I use my phone's entertainment features as a reward after completing tasks.					
22	My phone usage for entertainment never affects my academic commitments					
23	I maintain self-control when using smartphone for entertainment					
24	I frequently lose track of time while scrolling through social media for fun.					
25	I delay assignments because I get absorbed in online entertainment					
26	I find it difficult to stop watching movies or series once I start on my smartphone					
27	My phone entertainment habits reduce my motivation to study					
28	I spend long hours on entertainment apps even when I have academic deadlines					
29	I escape from academic stress by spending time on OTT apps					
30	My focus on studies decreases after spending long entertainment sessions on my phone					
31	I use messaging apps primarily for academic discussions.					
32	Messaging helps me coordinate effectively with my classmates for group work					
33	I respond promptly to academic messages without losing my focus					
34	I can ignore unnecessary chats while focusing on my studies.					

35	Messaging apps help me communicate academic updates efficiently					
36	I can control myself and avoid replying instantly to every message					
37	I use messaging features like “mute” or “do not disturb” during study hours					
38	I manage my time effectively even when I receive frequent messages					
39	I keep checking my phone for new messages even during study hours					
40	I feel distracted by constant message notifications while studying					
41	I find it hard to stop chatting even when I plan to study					
42	Messaging during study sessions breaks my concentration					
43	I lose focus on my studies whenever I hear message alerts					
44	I postpone my assignments because of long chats with friends					
45	I prefer chat rather than focusing on academic reading					
46	I can stay away from my smartphone comfortably while studying.					
47	I do not feel anxious when I keep my phone aside during academic work.					
48	I can concentrate well even my phone is not near me.					

49	I switch off my phone when I need to focus on my studies					
50	I can manage my daily routine even if I don't use my phone					
51	I check my phone while reading					
52	I do not rely on my smartphone for confidence					
53	I can attend lectures or study sessions without thinking about my phone					
54	I feel uncomfortable when my phone is not within my reach					
55	I keep checking my phone even during reading hours					
56	My study gets interrupted whenever I hear notification sounds.					
57	Looking down at my smartphone for long periods cause neck pain					
58	I feel disconnected when my phone is silent					
59	I find it difficult to stay focused without frequently checking my phone					
60	I experience headaches due to prolonged smartphone use					
61	I get more learning materials whenever I search for my studies					
62	I use the internet wisely to gather only important academic content					

63	Social media helps me exchange useful academic information					
64	I explore various websites to find useful educational information					
65	I use online search engines to improve my understanding of the lessons					
66	I check whether online information is relevant before using it for my work					
67	I choose only the online content that supports my learning					
68	I can quickly identify the study information that is most important					
69	While searching for academic content online, I distracted by entertainment links					
70	I click on online links that are unrelated to my academic work					
71	I get confused by conflicting information from different websites					
72	I struggle to decide which online resources are reliable					
73	Searching online for study materials wastes my time.					
74	I feel frustrated when I cannot find the specific academic information					
75	Too much online content makes it hard for me to focus on my studies					
76	I avoid using my smartphone before going to sleep					
77	Using my smartphone does not interfere with my normal sleep routine					

78	I ensure my phone is out of reach at night to prevent sleep disturbances					
79	I keep a regular routine as part of my daily schedule					
80	I manage phone settings, so calls do not interrupt my sleep					
81	I limit watching reels at night to maintain healthy sleep habits					
82	I consciously reduce screen time in the evening to improve my sleep quality					
83	I set a fixed bed-time for sleeping					
84	I stay awake late night due to using my smartphone					
85	I spend time scrolling on my phone in bed, which affects my sleep					
86	Watching videos on my phone cause me to sleep late at night					
87	I feel tired in class due to late night sleeping.					
88	I wake up during the middle of my sleep to check messages on my phone					
89	I check my phone multiple times before sleeping					
90	I lose sleep because I stay up late using my smartphone					

Appendix : C**N.V.K.S.D. COLLEGE OF EDUCATION, (AUTONOMOUS) ATTOOR****RE-ACCREDITED BY NAAC WITH 'A++' GRADE****(Affiliated to Tamil Nadu Teacher Education University)****ATTOOR, KANNIYAKUMARI DISTRICT****GENERAL DATA SHEET****Prepared by****Abisha R T & Dr. Prasad P.S****INSTRUCTIONS**

Certain details regarding you are required for my research purpose. The information given by you will be kept confidential and will be used for the research purpose only.

R.T.

Abisha

Name of the student :

Name of the College :

Locale : Rural / Urban

Marital Status : Single / Married

Birth order : First/Second/ Third

Educational Qualification of Parents

Father : BelowS.S.L.C/S.S.L.C&above/Degree &above

Mother : BelowS.S.L.C/ S.S.L.C&above/Degree &above

Age

- Below 20 years
- 20–22 years
- 23–25 years
- Above 25 years

Programme & Year of Study

- B.Ed. – First Year
- B.Ed. – Second Year

Optional Subject

- Arts
- Science

Type of Institution

- Government
- Aided
- Self-financing / Private

Average Daily Smartphone Usage

- Less than 1 hour
- 1–3 hours
- 3–5 hours
- More than 5 hours

Purpose of Smartphone Use (Multiple responses allowed)

- Academic purposes
- Communication / Messaging
- Social networking
- Entertainment (Music/OTT/Games)
- Online shopping
- Non-academic browsing (news, blogs, general internet use)
- Other (specify): _____

Time Spent on Social Media (Per Day)

- Less than 1 hour
- 1–2 hours
- 2–4 hours
- More than 4 hours

Frequency of Smartphone Use for Academic Purposes

- Never
- Rarely
- Sometimes
- Often
- Always

Appendix: D

N.V.K.S.D. COLLEGE OF EDUCATION, (AUTONOMOUS) ATTOOR

RE-ACCREDITED BY NAAC WITH 'A++' GRADE

(Affiliated to Tamil Nadu Teacher Education University)

ATTOOR, KANNIYAKUMARI DISTRICT

SMARTPHONE USAGE

SCALE(FINAL)

Prepared by

Abisha R T & Dr. Prasad P.S

Instructions

The items of scale are designed to evaluate the smartphone usage of you. Read the items carefully and mark the responses which is most suitable for you by putting a (✓) mark against five alternatives namely always, frequently, sometimes, rarely, never.

Note: Tick your answer in the correct box (✓)

S. No	Statements	Always	Frequently	Sometimes	Rarely	Never
1	Social media helps me to stay updated with academic events					
2	I find academic motivation from educational talks.					
3	I use smartphone tools like calendar and notes to organize and plan academic tasks effectively.					

4	Checking social media notifications frequently interrupts my concentration.					
5	Browsing inappropriate material on my smartphone affect with my learning					
6	I used to watch educational videos during my leisure time.					
7	My phone usage for entertainment never affects my academic commitments					
8	I maintain self-control when using smartphone for entertainment					
9	I delay assignments because I get absorbed in online entertainment					
10	My phone entertainment habits reduce my motivation to study					
11	I spend long hours on entertainment apps even when I have academic deadlines					
12	I can ignore unnecessary chats while focusing on my studies.					
13	I use messaging features like “mute” or “do not disturb” during study hours					
14	I manage my time effectively even when I receive frequent messages					
15	Messaging during study sessions breaks my concentration					

16	I lose focus on my studies whenever I hear message alerts					
17	I postpone my assignments because of long chats with friends					
18	I prefer chat rather than focusing on academic reading					
19	I can stay away from my smartphone comfortably while studying.					
20	I do not feel anxious when I keep my phone aside during academic work.					
21	I switch off my phone when I need to focus on my studies					
22	I can manage my daily routine even if I don't use my phone					
23	I keep checking my phone even during reading hours					
24	My study gets interrupted whenever I hear notification sounds.					
25	Looking down at my smartphone for long periods cause neck pain					
26	I find it difficult to stay focused without frequently checking my phone					
27	I experience headaches due to prolonged smartphone use					

28	I use the internet wisely to gather only important academic content					
29	Social media helps me exchange useful academic information					
30	I use online search engines to improve my understanding of the lessons					
31	I check whether online information is relevant before using it for my work					
32	I can quickly identify the study information that is most important					
33	I get confused by conflicting information from different websites					
34	I struggle to decide which online resources are reliable					
35	Searching online for study materials wastes my time.					
36	I feel frustrated when I cannot find the specific academic information					
37	I avoid using my smartphone before going to sleep					
38	I limit watching reels at night to maintain healthy sleep habits					
39	I consciously reduce screen time in the evening to improve my sleep quality					
40	I set a fixed bed-time for sleeping					

41	I stay awake late night due to using my smartphone					
42	Watching videos on my phone cause me to sleep late at night					
43	I wake up during the middle of my sleep to check messages on my phone					
44	I check my phone multiple times before sleeping					
45	I lose sleep because I stay up late using my smartphone					

Appendix: E**N.V.K.S.D. COLLEGE OF EDUCATION, (AUTONOMOUS) ATTOOR****RE-ACCREDITED BY NAAC WITH 'A++' GRADE****(Affiliated to Tamil Nadu Teacher Education University)****ATTOOR, KANNIYAKUMARI DISTRICT****Academic Procrastination Scale****(Prepared by Porselvam K. And Mr. Prasad P.S)****Instructions**

Certain Statements related to your daily life are given below. Read carefully each statement and put a tick mark against Yes/Sometimes / No. There is no right or wrong answer. Attend all statements without any omissions. Your response will be kept confidential & used only for research purposes.

S. No	Statements	Yes	Some times	No
1	I don't have the habit of preparing microteaching in advance			
2	I have the talent of taking micro-teaching			
3	I used to copy most of the assignments from my friends			
4	I used to finish assignment with minor errors			
5	I used to do my assignments & record work during college hours			
6	I used to submit the assignment in the last date			
7	I don't have the habit of preparing the teaching aids at proper time.			
8	I don't refer more books for my seminar			
9	I force someone to prepare the notes for my seminar.			
10	I used to attend the seminars and will be present there till end, to get other's point of views.			
11	I used to practice less for seminars.			
12	I make use of other's charts for teaching.			
13	I don't have the habit of arranging my teaching charts.			
14	I used to write the records just a day before submission			
15	Without making a rough copy, I directly write the PLM record			

16	I used to draw very poor diagrams in my records			
17	Even though, I don't prepare for teaching, I can handle the classes very effectively.			
18	I feel that readymade teaching aids are better than my own.			
19	I conducted student's achievement test, without preparing any preparing any blueprint			
20	I depend on somebody to correct the student's achievement test papers.			
21	I didn't conduct the diagnostic test, but I make Test and Measurement record.			
22	If I want information from a teacher about the record works, I meet to consult him/her immediately.			
23	I have the good rapport with my teachers and friends.			
24	I can't do the sudden works given by the professor			
25	I regularly take down notes in the class.			
26	I don't have the habit of taking hints while studying			
27	While writing as paper, I get hung up on the first paragraph			
28	I pay full attention in my class			
29	I don't attend the classes for extra- curricular activities			
30	I have no systematic study habits			
31	I depend on the class notes, for the last minute preparation			
32	I enjoy the last minute preparation.			
33	Because of last minute preparation, I can't recall the technical terms.			
34	When I receive a work, I used to tell myself that I Have plenty of time to finish the work and used to do nothing			
35	I usually leave a work half done and try a new one.			
36	I get thrill in doing works without any preparation			
37	I don't have the habit to taking the extra notes from internet			
38	I don't have the habit of using library daily.			
39	I don't have the habit of arranging my books.			

40	I depend on somebody to finish my craft booklets.			
41	I enter the class room very slowly			
42	I used to attend the first period five minutes late.			
43	I used to take leaves in my regular working day.			
44	I don't prepare for commission in advance.			
45	I have the habit of asking lame excuses with the concerned staff for the unfinished works			
46	If I have a doubt in my subject I immediately clarify it with my teacher.			
47	I generally return to study the difficult topics promptly (I leave the difficult topics to study).			
48	I become frustrated when obstacles interfere with the pursuit of teaching in the classroom			
49	I avoid facing my teacher, because, the teacher order me to finish the work on time.			
50	I copied others PowerPoint presentation to my CD instead of doing my own.			
51	Even though, I have the procrastination behavior, I am aware of all the works in this academic year.			
52	I have a lot of painful experience because of my procrastination.			
53	I feel bad at last minute different achievement due to my procrastination			
54	Because of my procrastination, I never get the initiation at any occasion in my college			
55	I can't see my brighter future because of my procrastination.			
56	I have less time management and laziness.			
57	I don't have the habit to participate in and public debates speaking			