

# Association Between Excessive Screen Time and Work Ability, Among University Academicians

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## Abstract

**Background:** The Internet is one of many media platforms and a highly accessible communication tool that offers a wealth of information. Academicians use technologies like laptops, tablets, and projectors more commonly than other professionals to ensure that the material presented in cooperative learning is current and applicable. Overusing screens can lead to disturbing consequences for both physical and mental health, ultimately affecting overall quality of life."

**Aim:** "The purpose of this study is to examine the correlation between prolonged screen use and occupational efficiency."

**Objective:** To evaluate screen addiction and work ability among university academicians.

**Methodology:** This observational study involved one hundred sixty university academicians from various academic institutions in and around Mangalore. Participants were screened and selected based on the inclusion criteria. Selected participants were given a screen time addiction questionnaire and a work ability index to complete. The completed questionnaires were then collected and analysed.

**Result;** The analysis discovered that all participants utilized digital devices for academic purposes, with most reporting excessive screen time, which is more than five hours. Despite having moderate to high mental capacities, participants reported moderate to severe work impairment due to disease, and the further revealed that screen addiction substantially impairs work performance."

**Conclusion:** These results imply that to retain maximum productivity, universities should put policies in place to encourage healthy screen-use behaviours. Interventions aimed at reducing the detrimental impacts of screen addiction on job capacity should be directed towards all people, irrespective of gender.

**Keywords:** Screen Addiction, Workability, Academicians

## INTRODUCTION

Among the various media forms, the Internet is a widely accessible communication technology that provides a vast amount of information.[1] Computers in the classroom have simplified for professors to communicate information and for college students to access it. The pandemic has had a huge impact on education, schools, and universities, resulted in rapid transition to online learning .[2]E-learning offers readily available current information and innovative instructional approaches. [1]Screen time helps to describe tasks conducted in front of screens, such as watching TV, functioning on a computer, digital gaming, or browsing social media. Various instructional approaches have been developed to meet the needs of diverse learning contexts and social media and the semantic web have developed into strong

platforms for higher education that offer instructors and student alike invaluable support.[3] PowerPoint slides have become a valuable tool for teachers to coordinate their teaching. They make the content more visually appealing and engaging, especially when combined with multimedia. According to studies, pictures can significantly improve students' comprehension and learning.[4]

While the internet is a valuable resource for learning, it may also hinder creativity .[5] Long periods of sitting time in adults have been related to acute and chronic illness (e.g., increased risk of obesity and heart disease), regardless of the manner or domain of sedentary [6] High levels of screen time have the potential to affect comprehensive health and well-being indicators.[2] Excessive screen time is connected to sleep difficulties and vulnerable to developing cardiovascular disease, including obesity and hypertension. Physical health risk include eye strain, irritation, redness, blurred vision, double vision, and decreased bone density. This is due to digital screens being backlit and emitting blue light; they irritate the retina and may cause long-term damage. It also suppresses the sleep hormone melatonin, causing an artificial sense of awakening and disturbing the sleep cycle, both of which contribute to increased eye strain. When people stare at a screen for long periods, their blinking rate drops to nearly half, resulting in dry eyes. Psychological effects that are related to poor sleep quality and are observed to cause persistent sensory stimulation could negatively impact brain development, thus raising the risk of emotional, behavioural, and cognitive problems in teenagers and young adults. It may raise the chance of the early onset of dementia. ([7],[5]). A screen addiction questionnaire can be used to determine the degree of screen addiction among people of any age.[8]

The global prevalence of internet addiction is 6.0%. The prevalence of screen addiction is high in the Indian population, at 13%. [3] The internet negatively affects overall QOL, both physically and psychologically. Quality of life is also known as well-being, which refers to how individuals perceive and evaluate different aspects of life, including factors such as emotional status, sense of fulfilment, satisfaction with work and personal relationships, and overall satisfaction. Reports also found that individual who spend a notable length of time online have a lower perceived 'quality of life' due to insufficient sleep, deteriorated physical health, difficulties concentrating on work, and reduced intimacy with family members. Daily social media users reported a higher 'quality of life' than non-users, based on cross-sectional study among post-secondary students in North India. [1]

Workability refers to a person's capacity to perform work tasks effectively and efficiently. It considers factors such as health-related ability, competencies, opportunities in the work environment, attitudes, values, and virtues. Workability is a holistic concept that considers the overall activity of a person in their professional context. It recognizes that good health is essential for optimal work performance, and it includes a range of factors that impact an individual's ability to work successfully. [8] A work ability index is employed to assess current and near-future work performance.

It's tough to teach, particularly in the university context, where there is an increasing amount of work in research and teaching because of raising performance expectations. Approximately 20.7% of the faculty members identified as easily stressed out. Faculty and academic institutions are therefore under pressure to interact with students and provide educational content platforms like Facebook and LinkedIn. Academicians now feel more pressure to use digital platforms and online technologies for collaborative learning. Efficient and productive manner. [9], [5] Stress may also arise from increased time demands, gaps in knowledge and abilities, and psychological strain. Technology stress can affect organizational dedication and job satisfaction, as well as physical and psychological problems.[10]

**Need of the study:**

Nowadays, almost every individual has access to the media so that they can acquire and share knowledge and engage in online banking, gaming, shopping, etc. To ensure that the material taught in collaborative learning is up-to-date and relevant in the workplace, academicians are using technologies such as laptops, tablets, and projectors more often than other professionals. “Studies suggest that excessive screen time affects children and adolescents, including medical students and IT professionals. However, studies for finding the effect of excessive screen use among academicians are scarce. So, it is essential to determine the link between excessive screen time and workability in this population.

**Aim of the study:**

The study intends to explore the link between screen time and workability among university academicians. The study would explore the possible effect of time spent in front of screens on their workability.

**“Significance of the study”**

By examining “these factors, one can gain information regarding the potential effects of screen time on the work ability of academicians. The findings of this study can be used to develop targeted interventions and raise awareness among academicians and the wider community about the importance of responsible screen use.

**“Hypothesis of the study”****Null hypothesis:**

H01: There is “No statistically significant relationship in work efficiency and screen addiction among university academicians”

**Alternative hypothesis:**

H1: There is “statistically significant relationship in work efficiency and screen addiction among university academicians”

**Objective:**

“The objective of this observation is”

1. To evaluate Screen time among academicians using a Screen Time Addiction Questionnaire.(STAQ)
2. To evaluate work ability among academicians using the Work Ability Index.(WAI)
3. To explore the relationship between screen addiction and work ability among academicians.

**MATERIALS AND METHODOLOGY:**

**Study design:** Observational study

**Study population:** University teachers from various institutions.

**Sampling method:** convenient sampling

**Sample size calculation:**

The sample size is calculated using the formula of  $n = (z^2 * p * q) / d^2$

**Where,** n = sample size, z = standard normal deviation, level of confidence, p = proportion in the target population, q = 1-p (proportion in the target population not having the characteristics) d = degree of acc-

uracy required.

$Z = 1.96$  at a 95% confidence level

$d = 20\%$  of  $p$  (80% power)

With 95% confidence level and 80% power concerning an article by Amen Bharti et al. "the effect of Internet addiction on the sleep pattern on the 'quality of life among' medical student" Sample size comes to be 160.

**Study setting:** University academicians from various institutions in and around Mangalore.

**Study duration:** Dec 2023 to May 2024

**Procedure:**

To conduct the research titled "Association between excessive screen time and work ability among university academicians," initial approval will be obtained from the Institutional Ethical Committee to ensure compliance with ethical standards. University teachers (160) were recruited from various institutions in and around Mangalore. Participants were screened and enrolled based on the inclusion criteria, excluding those on medication for anxiety, sleep disorders, or psychological disturbances. They were informed about the study details, and consent was obtained. Participants were required to fill out the structured Screen Time Addiction questionnaire and Work Ability Index. The findings will then be analysed using the statistical method.

**OUTCOME MEASURES:**

**Screen Time Addiction Questionnaire:**

Katie Singer (2017) created the screen time addiction questionnaire to assess the degree of screen addiction among people of all ages. There are seven components in this tool. The scale "showed sufficient internal reliability and consistency." There are seven components in this tool; each component is answered in the form of 'yes' or 'no'. Three or more yesses point to probable screen time addiction.

**Work Ability Index**

WAI is a measure of an individual's self-assessed work performance, considering demands on their time, health, and mental resources. The WAI consists of seven items. The individual items are summed to create an index, with total score ranging from 7 to 49 points. Higher the score indicates greater the work performance. Work ability index the showed sufficient internal reliability and consistency." [8]

**"INCLUSION CRITERIA:**

Participant Requirement:

- University academicians from various academic position and specialities.
- Age above 23 years
- -Both male and female

**EXCLUSION CRITERIA:**

Teachers at universities who are:

taking medicine for conditions such as anxiety, sleep disorder, or being psychologically disturbed.

**STATISTICAL ANALYSIS**

Utilizing the descriptive statistics of frequency, percentage, mean, and standard deviation, the acquired

data were condensed. “Association between ‘excessive screen time and work ability’ among university academician” is evaluated by using chi –square test, work ability. "Work ability was compared between male and female participants using an Independent t-test". All sample analysis will be performed using SPSS version of 24.0. P less than 0.5 will be considered as Significance.

**RESULT**

**Following table shows the frequency and percentage among male and female participants in the Study.**

Males: 53 (33.1%). Females: 107 (66.9%).

<b>GENDER</b>			
		Frequency	Percent
	Male	53	33.1
	Female	107	66.9
	Total	160	100

**The following table states the frequency and percentage of participants by their designation:**

Showing that majority of participants (78.8%) are assistant professors, followed by lecturers (15.6%), professors (3.8%), and associate professors (1.9%).

<b>DESIGNATION</b>			
		Frequency	Percent
	Lecturer	25	15.6
	Assistant Professor	126	78.8
	Associate Professor	3	1.9
	Professor	6	3.8
	Total	160	100.0

**The table below indicates that all 160 participants (100%) use smartphones, laptops, or tablets for academic purposes.**

		Frequency	Percent
	Yes	160	100.0

**The following table illustrates the frequency and percent of participant using smart phone, laptop, tablets for academic purpose in a day.**

	Frequency	percent
Less than 5 hours	65	40.7
5 - 10	74	46.3
10 –15	18	11.4

15 - 18	3	1.9
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The following table shows the frequency and percent of the participant agree with the following statement.

	FREQUENCY		PERCENT	
	YES	NO	YES	NO
<b>I CAN'T IMAGINE GOING ANYWHERE WITHOUT MOBILE DEVICE</b>	118	42	73.8	26.3
<b>SCREEN TIME IS NOT AS MUCH AS IT USE TO BR'BUT STILL ON IT</b>	119	41	74.4	25.6
<b>I AM OFTEN AT MY SCREEN FOR LONGER THAN I INTENDED</b>	118	42	73.8	26.3
<b>I HAVE TRIED TO DECREASE MY SCREEN TIME BUT I CAN'T</b>	100	60	62.5	37.5
<b>SCREEN TIME TAKES UP ALMOST ALL OF MY FREE TIME</b>	113	47	70.6	29.4
<b>SOMETIMES I AM ONLINE WHEN I'D REALLY PREFER TO OTHER ACTIVITY</b>	94	66	58.8	41.3
<b>I HAVE MORE TIME THAN IS</b>	93	67	58.1	41.3

GOOD FOR ME				
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As shown in the table below that all participants (100%) are classified as having screen addiction.

	Frequency	Percent
Present	160	100.0

The following table illustrate the frequency and percent of estimated work impairment due to disease and who experienced illness within last years among participants.

As the score increases Disease or illness decreased.

SCORE	FREQUENCY						PERCENT					
	2	3	4	5	6	TOTAL	2	3	4	5	6	TOTAL
ESTIMATED WORK IMPAIRMENT DUE TO DISEASES	0	15	58	39	48	160	0	9.4	36.3	24.4	30.6	100
ILLNESS WITHIN LAST YEARS (12 MONTH)	10	34	69	47	0	160	6.3	21.3	43.1	29.4	0	100

The following table shows the distribution of participants' estimations of their own work ability in 2 years, with varying levels of confidence or expectation.

- 21.9% (35 participants) reported a score of 1, indicating a very low expectation of their work ability in 2 years.- 2.5% (4 participants) reported a score of 3, indicating a moderate expectation of their work ability in 2 years.- 43.8% (70 participants) reported a score of 4, indicating a relatively high expectation of their work ability in 2 years.- 31.9% (51 participants) reported a score of 7, indicating a very high expectation of their work ability in 2 years.

score	Frequency	Percent
1	35	21.9
3	4	2.5
4	70	43.8
7	51	31.9
Total	160	100.0

The following result shows the distribution of participants' mental capacities, with varying levels of ability or performance.

- 5.6% (9 participants) reported a score of 1, indicating a very low level of mental capacity.- 11.9% (19 participants) in reported a score of 2, indicating a relatively low level of mental capacity.- 55.0% (88 participants) reported a score of 3, indicating a moderate level of mental capacity.- 27.5% (44 participants) reported a score of 4, indicating high level of mental competence.

MENTAL CAPACITIES (SCORE)		
	Frequency	Percent
1	9	5.6

2	19	11.9
3	88	55.0
4	44	27.5
Total	160	100.0

The table display that most participants (66.2%) exhibit a favourable review of their work ability, with 17.5% considering it EXCELLENT and 28.7% considering it GOOD. However, a significant proportion (43.1%) consider their work ability MODERATE, and a smaller proportion (10.6%) consider it POOR

WORK ABILITY			
		Frequency	Percent
	EXCELLENT	28	17.5
	GOOD	46	28.7
	MODERATE	69	43.1
	POOR	17	10.6
	Total	160	100.0

The following table distribute actions that participants have to take based on their work ability.

- 43.1% (69 participants) must IMPROVE their work ability.
- 17.5% (28 participants) must MAINTAIN their current work ability.
- 11.3% (18 participants) must RESTORE their work ability.

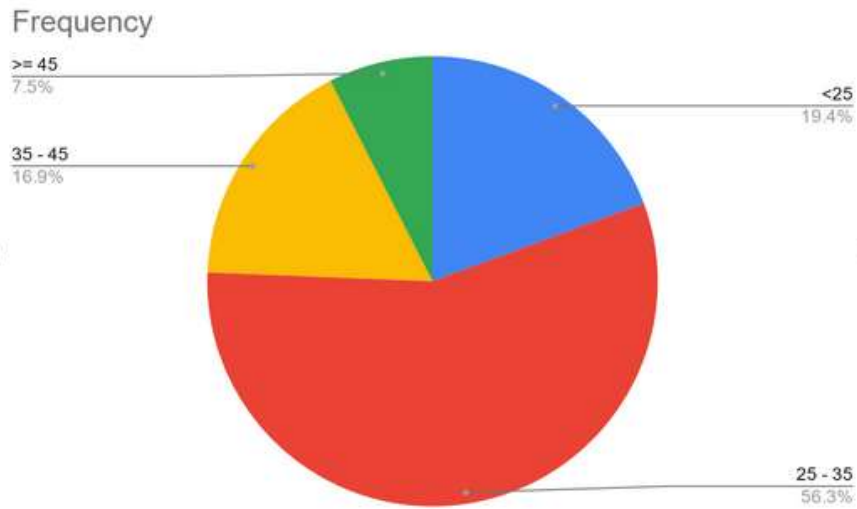
ACTION			
		Frequency	Percent
	IMPROVE	69	43.1
	MAINTAIN	28	17.5
	RESTORE	18	11.3
	SUPPORT	45	28.1
	Total	160	100.0

### DESCRIPTIVE STATISTICS

The table below indicates the 'age' range of participants.

	N	Minimum	Maximum	Mean	Std. Deviation
AGE	160	23	65	32.26	8.229





The above pie chart shows the frequency and percentage distribution of participants across different age groups.

Most participants (56.3%) fall in the 25-35 age group, followed by the <25 age group (19.4%), the 35-45 age group (16.9%), and the >=45 age group (7.5%).

The statistical analysis of the total score across various age range listed below, which indicate the non-significant outcome.

	N <sup>a</sup>	Mean	Std. Deviation	Minimum	Maximum
<25	31	36.403	6.4426	21.0	47.5
25 - 35	90	35.039	7.4477	4.0	48.0
35 - 45	27	36.426	5.9979	27.0	47.0
>= 45	12	35.167	6.6447	21.0	44.5

a. F=0.469 p=0.704 ns

The following table illustrate Total Score between males and females, using an Independent Samples t-test

- The t-value (t=.760) and p-value (p=0.448) indicate that there is no statistically significant difference between the mean Total Scores of males and females. The p-value is greater than 0.05, indicating a non-significant result (ns).

The following table illustrate the comparison of total score between males and females independent sample t test. Found that the result is not statistically significant.

	GENDER	N	Mean	Std. Deviation	t
	Male	53	34.953	8.171	.760
	Female	107	35.841	6.273	p=0.448 ns

## DISCUSSION

The current study's objective was to assess the relationship between academicians' workability and their excessive screen use. Results suggest that all 160 participants (100%) used a laptop, tablet, or smartphone for educational purposes; most are female and assistant professors between the ages of 25 and 35. This reveals that all sample 'participants access digital devices' for academic work and use them for a significant period of about 5–8 hours every day. It was helpful to learn from questionnaires that many participants (73.8%) could not imagine traveling anywhere without a cell phone, and 74.4% had attempted to cut back on their screen time but were still using it. 73.8% of participants find it difficult to put down their devices, which results in prolonged screen time. 62.5% of participants find it difficult to cut back on-screen time, even with their best efforts. 58.1% of participants reported more screen time, which they found beneficial.

The work ability index suggested that participants (90.6%) reported a moderate to severe level of work impairment due to diseases, suggesting that these diseases have a profound impact on their work ability. The greatest portion of participants (82.5%) reported a moderate to high level of mental capacity. Indicating a general sense of cognitive ability and mental performance, a smaller proportion (17.5%) reported lower levels of mental capacity, suggesting challenges or difficulties in this area. Many participants (66.2%) reported their work ability as good or excellent, indicating a general sense of confidence and capability in their work performance. However, a significant proportion (43.1%) reported their work ability as Moderate, suggesting some challenges or areas for improvement. A smaller proportion (10.6%) reported their work ability as poor, indicating potential difficulties or struggles in their work performance.

The outcome shows that screen addiction has a significant negative impact on work ability. This finding is resonant with the research, 'Canadian Society of Paediatrics and the American Academy of Paediatrics' express caution about children using handheld gadgets excessively (cell phones), as this can result in several chronic illnesses. Children who reported using screens for a duration more than two hours daily, performed worse on thinking and language exams. [5] A study conducted on the IT profession in India found that prolonged screen use brings three main issues, such as disconnection, distraction, and breakdown in communication. Additionally, it causes visual, musculoskeletal, and psychological problems. [10] Medical students in North India who are addicted to the 'internet' tend to experience poor sleep, reduced 'quality of life', and negative impacts on their health, a study found. [3]

Age and gender play a moderating role, indicating that younger adults and females are more susceptible to the adverse impact of screen addiction on work performance. This is likely due to variety aspects like, younger adults and females being more prone to excessive screen time or being more prone to distractions and decreased productivity.

## Conclusion

The present study highlights the importance of responsible screen use in the workplace and beyond. The findings suggest excessive screen time can negatively affect workability, particularly among younger adults and females. Employers and individuals should consider implementing strategies to promote healthy screen use habits and maintain optimal workability. The lack of significant gender differences in the total score implies the program should be designed for a general population; interventions should target all individuals, regardless of gender. By acknowledging the risk of excessive screen time,

universities can promote a healthier and higher-performance workplace for their faculty members. include implementing policies and programmes aimed at reducing screen time, promoting healthy screen use habits, and providing resources and support for employees struggling with screen addiction.

#### **Limitation of the study:**

The study had a limited number of participants, which may not be representative of the larger population.

#### **Future recommendations:**

Increase the sample size to improve representativeness and statistical power.

Investigate additional factors that may be impacted by excessive screen time.

Expand the study to include diverse population and settings to expand generalizability.

Develop and test interventions aimed at ‘reducing screen time addiction and improving work ability’

#### **Conflict of interest**

The authors have no conflict of interest to report.

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