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Teachers and Smartphones: Usage Patterns, Perceptions, and Impact on Professional Work and Personal Well-Being

Insegnanti e Smartphone: Pattern di Utilizzo, Percezioni e Impatto su Lavoro e Benessere

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Abstract
This study examines smartphone use among teachers, exploring patterns, perceptions, and the impact on professional efficacy and personal well-being. The study addresses: (1) How does smartphone use vary based on demographic and professional factors? (2) What is the relationship between teachers' perceptions of appropriate smartphone use and their actual use? (3) How do teachers perceive the impact of smartphone use on their work and well-being? An online survey was conducted with 159 teachers across various educational levels and subjects. The survey included demographic questions, questions on smartphone use, and the Smartphone Addiction Teacher Scale (SATS). Younger teachers and those with fewer years of service reported significantly higher daily smartphone use compared to older and more experienced teachers. No significant differences were found based on school type or subject taught. Teachers reported using their smartphones more than deemed appropriate, with a median actual use of 3 hours per day versus a perceived appropriate use of 2 hours. A strong positive correlation was found between actual and perceived appropriate use. Younger teachers scored higher on the SATS, indicating a greater risk of Smartphone Addiction. Moreover, a higher score on this scale was also associated with higher smartphone use and higher difficulty in concentrating at work; this can impact teachers' professional efficacy and personal well-being. Educational institutions should therefore implement programs to raise awareness about Smartphone Addiction, manage digital habits, and promote balanced smartphone use in the classroom to enhance teacher well-being and educational outcomes.

Keywords: Smartphone Addiction, Teachers' Well-Being, Impact on Professional Work.

Riassunto
Lo studio esamina l'uso dello smartphone tra gli insegnanti, esplorandone i modelli, le percezioni e l'impatto sul lavoro e sul benessere. Viene indagato: (1) In che modo l'uso dello smartphone varia in base a fattori demografici e professionali? (2) Qual è la relazione tra le percezioni degli insegnanti riguardo all'uso appropriato dello smartphone e il loro uso effettivo? (3) Come percepiscono gli insegnanti l'impatto dell'uso dello smartphone sul loro lavoro e benessere? È stata condotta un'indagine online che ha coinvolto 159 insegnanti appartenenti a differenti ordini scolastici e ambiti disciplinari. L'indagine comprendeva domande demografiche, domande sull'uso dello smartphone e la Smartphone Addiction Teacher Scale (SATS). Gli insegnanti più giovani e quelli con minore anzianità di servizio hanno dichiarato un uso quotidiano dello smartphone significativamente più elevato rispetto ai colleghi più anziani e con maggiore esperienza. Non sono state riscontrate differenze significative in base all'ordine di scuola o alla disciplina insegnata. Gli insegnanti hanno dichiarato un utilizzo dello smartphone superiore a quanto da loro ritenuto appropriato, con un uso mediano di 3 ore al giorno a fronte delle 2 ore considerate appropriate. Si è inoltre riscontrata una forte correlazione positiva tra l'uso effettivo e quello ritenuto appropriato. Gli insegnanti più giovani hanno ottenuto punteggi più alti nella SATS, indicando un rischio maggiore di dipendenza da smartphone. Inoltre, un maggior punteggio nella scala si è dimostrato associato a un maggior uso dello smartphone e a una maggiore difficoltà di concentrazione sul lavoro; ciò può influenzare l'efficacia professionale e il benessere personale degli insegnanti. Le istituzioni scolastiche dovrebbero pertanto implementare programmi per aumentare la consapevolezza sulla dipendenza da smartphone, gestire le abitudini digitali e promuovere un uso equilibrato dello smartphone in classe per migliorare il benessere degli insegnanti e i risultati educativi.

Parole chiave: Dipendenza da telefonino, benessere degli insegnanti, impatto dello smartphone sulla professione degli insegnanti.

Corrado Petrucco wrote paragraphs: Introduction, Smartphone Addiction among teachers, Discussion, and Conclusion. Laura Carlotta Foschi wrote paragraphs: Study and Results.

1. Introduction

Smartphones have become integral to modern life, offering significant benefits in communication, information accessibility, and entertainment. However, their ease of use and constant connectivity can lead to Smartphone Addiction (SA), often also referred to as Problematic Smartphone Use, characterised by excessive engagement with these devices. SA is often associated with a range of negative physical outcomes including decreased activity and weight issues, sleep disturbances, neck pain, eyes strain, and hand or wrist discomfort due to prolonged usage (Noë et al., 2019; Ratan et al., 2022).

SA has profound psychological consequences that can negatively impact social interactions and overall well-being. Studies by Kumar (2021) and Bayanova et al. (2022) have shown strong relationships between SA and health and mental problems: it has profound psychological consequences, including depression, anxiety, stress, and low self-esteem (see also Chen et al., 2020; Elhai et al., 2017; Lei et al., 2020; Ratan et al., 2022; Rathod et al., 2022). These effects are particularly strong when users are separated from their devices (i.e. "nomophobia") (Faiola et al., 2018; Kim et al., 2018; Pera, 2020), making it a significant concern for overall well-being and social interactions.

The fear of being without a mobile phone is a specific type of anxiety that has been increasingly recognised as an addiction disorder by the WHO (Bragazzi & Del Puente, 2014; Peraman & Parasuraman, 2016). Studies have shown that high smartphone use decreases life satisfaction and increases unhappiness (Muralidharan et al., 2023; Samaha & Hawi, 2016). In a workplace context, lack of proper verbal or nonverbal cues may hinder face-to-face interactions: this could lead to a loss of empathy and misunderstandings, resulting in conflicts among colleagues (Patterer et al., 2021; Sheinov, 2020).

Although smartphone use at work can enhance job performance and social capital, it can also induce anxiety and distract from work tasks (Li & Lin, 2019). Research suggests that SA is correlated with self-reported decreases in productivity (Buctot et al., 2021; Thornton et al., 2014), likely due to excessive use during work hours (Duke & Montag, 2017). The mere presence of a smartphone can be distracting, resulting in diminished attention and deficits in task performance, missed deadlines, poor quality output, and decreased effectiveness in fulfilling job requirements.

This research examines patterns of smartphone use among educators to provide insights into their professional development and digital habits, highlighting the challenges of balancing professional efficacy with personal well-being in an increasingly technology-driven environment.

2. Smartphone Addiction among teachers

While a lot of research has been done on the SA of students, very little research has been done on teachers. This addiction can have several negative effects on their professional lives and the learning environment for students. Some of these consequences include isolation from students and colleagues, lack of attention during class, use of devices for non-instructional purposes, and a general decline in teaching quality due to difficulties in maintaining attention and managing time effectively. The literature on this topic is mixed: one study found a significant positive correlation between prospective teachers' SA and interaction anxiety, which may affect teaching effectiveness and classroom management (Konan et al., 2018); another study described SA among pre-service STEM teachers as modest, but suggested that female teachers were inversely correlated with the highest and lowest clusters of addiction, highlighting a gender perspective on smartphone use (Masalimova et al. , 2022); in another study, prospective teachers' SA was found to be positively correlated with interaction anxiety (Konan et al., 2018). These findings suggest that SA among teachers and educators, particularly those in training or in early stages of their career, can have a range of impacts on their professional efficacy and the learning environment they create, ultimately affecting the learning outcomes of their students. To summarise, a teacher's addiction to their smartphone can have several negative effects:

1) a reduced attention span, which can make it difficult for teachers to maintain focus during class or while working with students in learning activities.

2) a negative impact on student relationships, which occurs when a teacher is frequently checking their phone during class. It can create a sense of disconnection and students may feel that they are not receiving the attention and support they require.
3) provides a bad example for their students regarding the smartphone responsible use.

It is therefore important to make teachers aware of this issue and provide those affected with effective help to mitigate these possible critical problems. For these reasons, through this research we tried to understand how widespread this addiction is and to what extent teachers are aware of it.

3. Study

3.1 Research Questions

This study aims to examine smartphone use among teachers, considering factors such as age, years of service, school types, and subjects taught. It seeks to identify patterns and perceptions related to teachers' self-awareness of their smartphone use and its impact on their professional efficacy and personal well-being. Thus, the research questions were:

1. How does smartphone use differ among teachers based on demographic and professional variables, i.e., age, years of service, school type and subject taught?
2. What is the relationship between teachers' perceptions of appropriate smartphone use and their actual reported use?
3. What are teachers' perceptions of the impact of smartphone use on their professional work and personal well-being?

3.2 Data collection and participants

The survey underlying the study consisted of multiple sections, for the purposes of this paper we have considered the following. Description of the sample: age, years of service, school type, and main subject(s) taught. Smartphone use, i.e. hours of actual use vs. hours of use considered appropriate: the teachers' answers to the questions "How many hours on average do you use your Smartphone every day?" and "How many hours on average do you think a person of your age should use their Smartphone every day?". SA: the items of the Smartphone Addiction Teacher Scale (SATS) developed by the Authors: they were partially derived and adapted from the Smartphone Addiction Scale - Short Version (SAS-SV) (De Pasquale et al., 2017). The adaptation involved tailoring items to the specific context of teachers and reformulating them to better reflect adult behaviour, as opposed to the focus of the original instrument on adolescents and young adults.

The SATS consists of eight items and teachers should indicate their agreement with each item on a 5-point Likert-type scale from 1 (Strongly disagree) to 5 (Strongly agree). The SA score is calculated by summing the individual item scores and ranges between 8 and 40. The instrument was previously subjected to a preliminary psychometric assessment in a sample of 168 teachers. After confirming that the correlation matrix was factorable (pseudo $\chi^2 = 535$, $df = 36$, $p < .001$; KMO = .87), we submitted for exploratory factor analysis (EFA) with principal-axis factoring extraction and oblique oblimin rotation. Exploring the factor structure produced a one-factor solution (scree-test and Kaiser-Guttman criterion) consistent with the expectations and theoretical framework. The factor has been saliently loaded by all eight variables, with factor loadings ranging from .57 to .80 and had explained 50.9% of the variance in the correlation matrix. The factor also demonstrated good internal consistency reliability (Cronbach's $\alpha = .86$).

The sample of the present study consisted of 159 teachers who voluntarily participated in the survey. They were recruited through convenience sampling methods during training activities and academic events (e.g., conferences) focused on mobile learning at school and SA. The teachers' ages ranged from 25 to 64+ and their years of service from less than 1 to more than 30. Fourteen were primary school teachers (8.8%),

fifty-eight lower secondary (36.5%), and eighty-seven upper secondary (54.7%). For more details, see column "N" in Table 1.

3.3 Data analysis

To answer the first and third research question, we used the Kruskal-Wallis H test. We conducted a different test for each independent variable, i.e., grouping variable: age (4 groups, see column "Group" in Table 1); years of service (7 groups), school type (3 groups), and subject taught (7 groups). We used the teachers' answer to "How many hours on average do you use your Smartphone every day?" (RQ1) and the SA score (RQ3) as the dependent variable. When the Kruskal-Wallis test was significant, we conducted post-hoc tests with Bonferroni correction of the level of significance to analyse the differences between the different groups. In addition, we performed the Jonckheere-Terpstra test to analyse if there was a statistically significant trend between the ordinal independent variables (i.e., age and years of service) and the dependent variables (i.e., number of hours of Smartphone use and SA score). The a priori hypothesis was that medians of the dependent variables decrease as the groups of the ordinal variables increase.

To answer the second research question, we used the Spearman's rank-order correlation. We aimed to measure the strength and direction of association (if any) between the two variables, i.e. teachers' perceptions of appropriate Smartphone use and their actual reported use. To analyse whether there were differences within teachers for actual vs. appropriate hours of Smartphone use, we performed a Wilcoxon signed-rank test.

To answer the third research question, in addition to the above, we used Spearman's rank correlation to test for the association between SA score and self-reported average daily hours of actual smartphone use, and between SA score and the responses to the item "In my work/study activities, I can only concentrate for a short time".

Finally, for all statistics, the significance level (p) was set at .05 and the effect size was calculated as follows. For the post-hoc tests and the Jonckheere-Terpstra test, we used r, which was calculated as $z/\sqrt{n}$. For the Kruskal-Wallis test, we used w, which was calculated as $\sqrt{(\chi 2/n)}$ and is in the same metric as r. In order to interpret the results, we used Cohen's (1988) guidelines: small, $.10 < r \leq .30$; medium, $.30 < r \leq .50$; large, $r > .50$.

4. Results

RQ1: How does smartphone use differ among teachers based on demographic and professional variables, i.e., age, years of service, school type and subject taught?

Kruskal-Wallis H tests showed that there was a statistically significant difference in the daily average hours of Smartphone use between:

(a) the four age groups (χ^2 (3) = 13.55, *asymp.* p = .004, w = .29) and
(b) the seven groups of years of service (χ^2 (6) = 15.66, *asymp.* p = .016, w = .31), with mean ranks average hours as outlined in Table 1.

Differently, there was not a statistically significant difference in hours of use between (c) the three school type groups (χ^2 (2) = 5.68, *asymp.* p = .058) and (d) the seven subject taught groups (χ^2 (6) = 1.37, *asymp.* p = .968).

Subsequent post-hoc tests performed with Bonferroni correction of the level of significance showed the following. As regards (a), the only significant difference was between the 25-34 and the 55-64+ group (z = 3.45, *asymp.* p = .003, r = .27) with a higher daily average hours of Smartphone use by the 25-34 group. The Jonckheere-Terpstra test also showed that the four groups can be sorted by hours of use, i.e. their median decreases with increasing age and this trend is statistically significant (*Standardised JT statistic* = 3.47, *asymp.* p = .001, r = .28). As regards (b), the only significant difference was between the 1-5 and the 26-30+ group (z = 3.66, *asymp.* p = .005, r = .29) with a higher daily average hours of Smartphone use

by the 1-5 group. The Jonckheere-Terpstra test also showed that the seven groups can be sorted according to hours of use, i.e. their median decreases with increasing years of service and this trend is statistically significant (*Standardised JT statistic* = 3.45, *asymp. p* = .001, *r* = .27).

In addition, as regards (c), although the Kruskal-Wallis test was not significant considering the three school type groups, however, distinguishing between the first cycle (primary and lower secondary school) and the second cycle (upper secondary school) and running a Mann-Withney U test, the results showed that there was a statistically significant difference between the two groups (U = 2495, z = -2.26, *exact p* = .023, r = .18), with a higher median number of hours of Smartphone use by the first cycle group.

			How many hours on average do you use your Smartphone every day?					
Variable	Group	N	M	SD	25° (Q1)	50° (Me)	75° (Q3)	Mean rank
Age	25-34	16	3.94	1.39	3	4	4.25	111.47
	35-44	21	3.29	1.65	3	3	4	90.43
	45-54	53	2.91	1.33	2	3	4	81.25
	55-64+	69	2.61	1.56	2	2	3	68.57
Years of service	< 1	3	4.33	3.22	2.50	3	5.5	95.33
	1-5	25	3.84	1.68	3	4	5	106.04
	6-10	18	2.89	1.37	2	3	3.75	80.08
	11-15	16	3.19	.91	2.75	3	4	91.06
	16-20	25	2.64	1.41	2	2	4	71.72
	21-25	22	2.91	1.34	2	3	4	81.86
	26-30+	50	2.48	1.49	2	2	3	65.81
School type	Primary	14	3	1.36	2	2.50	4	80.86
	Lower secondary	58	3.28	1.56	2	3	4	90.78
	Upper secondary	87	2.69	1.49	2	3	3	72.68
School cycle	First cycle	72	3.22	1.52	2	3	4	88.85
	Secon cycle	87	2.69	1.49	2	3	3	72.68
Subject taught	Italian/Foreign Languages/Law/Philosophy/History/Geography	70	2.87	1.41	2	3	4	81.27
	Mathematics/Physics/Chemistry/Biology/Science	21	2.81	1.72	2	3	3	85.64
	Technology/Computer Science/Mechanics and similar	8	3	1.07	2	3	3.25	71.06
	Specialised subjects (Vocational Institutes)	5	2.4	1.52	2	3	3	81.2
	Physical Education	5	2.8	2.17	1	4	4	38.3
	Art/Music/Design and similar	3	2.67	2.08	1.50	2	3.5	119.5
	Other	47	3.15	1.61	2	3	4	78.89

Table 1: Hours of teachers' smartphone use by independent variables: Age, Years of service, School type, School cycle and subject taught

RQ2: What is the relationship between teachers' perceptions of appropriate smartphone use and their actual reported use?

The Spearman's rank-order correlation showed a strong, positive correlation between estimated average daily hours of Smartphone use and estimated average daily hours of use considered appropriate for a person of one's own age, which was statistically significant (r_s (157) = .59, p = < .001). Moreover, a Wilcoxon signed-rank test was performed to test for significant differences within teachers for the actual vs appropriate hours of Smartphone use. The results (z = -8.17, *exact p* < .001, r = .65) showed that the estimated average daily hours of Smartphone use was significantly higher for actual use (Me = 3, Q1 = 2, Q3 = 4, M = 2.93, SD = 1.52) than for appropriate use (Me = 2, Q1 = 1, Q3 = 2, M = 1.91, SD = 1.07). The activities that teachers said they usually do with their Smartphone are shown in Figure 1.

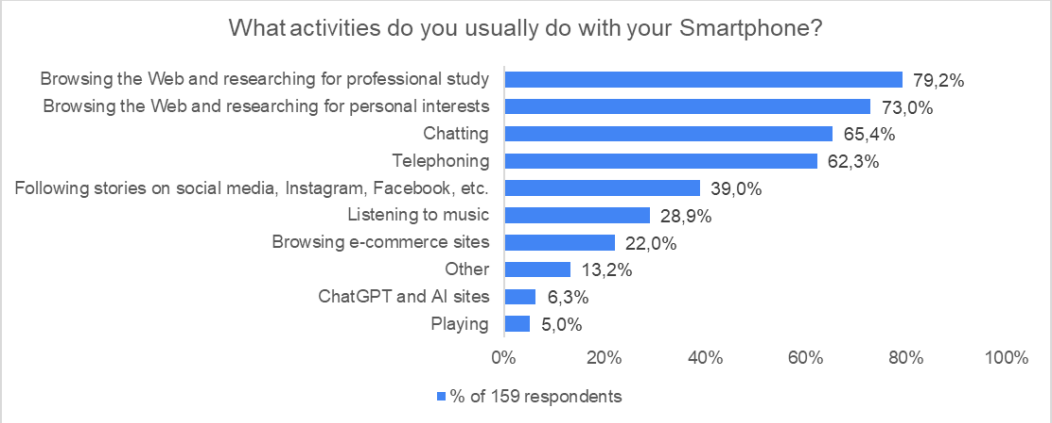

Figure 1: Activities that teachers usually do with their smartphones

RQ3: What are teachers' perceptions of the impact of smartphone use on their professional work and personal well-being?

Kruskal-Wallis H tests showed that there was a statistically significant difference in the SA score only between the four age groups (χ^2 (3) = 10.71, *asymp. p* = .013, *w* = .26), with mean ranks average hours as outlined in Table 2. Otherwise, there was not between years of service, school type, and subject taught groups (respectively, χ^2 (6) = 5.50, *asymp. p* = .482; χ^2 (2) = .312, *asymp. p* = .86; χ^2 (6) = 6.02, *asymp. p* = .421). Subsequent post-hoc tests performed with Bonferroni correction of the level of significance showed that the only significant difference was between the 25-34 and the 45-54 group (*z* = 2.67, *asymp. p* = .046, *r* = .21) with a higher SA score by the 25-34 group.

However, if we consider the one-sided test, the difference between the 25-34 and the 55-64+ group is statistically significant (*z* = 2.55, *asymp.* $p_{(one\text{-}sided)}$ = .032, *r* = .20). The Jonckheere-Terpstra test also showed that the four groups can be sorted by SA score, i.e. the median SA score decreases with increasing age and this trend is statistically significant (*Standardised JT statistic* = 2.29, *asymp. p* = .022, *r* = .18).

Furthermore, the Spearman's rank-order correlations showed a medium, positive correlation between SA score and estimated average daily hours of actual Smartphone use and between SA score and the response to the item "In my work/study activities, I can only concentrate for a short time", which were statistically significant (respectively: r_s (157) = .42, *p* = < .001, r_s (157) = .34, *p* = < .001).

			SA score					
Variable	Groups	N	M	SD	25° (Q1)	50° (Me)	75° (Q3)	Mean rank
Age	25-34	16	18.5	5.02	15.75	17.50	21.25	107.16
	35-44	21	17.52	5.91	13	18	23	96.4
	45-54	53	14.92	6.09	10	12	19	72.2
	55-64+	69	15.29	6.83	11	14	17	74.7
Years of service	< 1	3	14	2.65	13	15	15.5	73.83
	1-5	25	16.6	6.11	12	16	19	88.2
	6-10	18	16.1	5.3	11.5	16	21	86.89
	11-15	16	16.6	4.83	12	16.5	20.3	93.03
	16-20	25	15.1	7.57	10	12	17	68.84
	21-25	22	16.5	6.76	10.5	16	20	85.23
	26-30+	50	15.1	6.79	10.3	13.5	16.8	72.9
School type	Primary	14	15.6	7.15	10	12	19.8	74.39
	Lower secondary	58	15.4	5.45	11	15	18	79.19
	Upper secondary	87	16.1	6.85	11	14	19	81.44
School cycle	First cycle	72	15.42	5.76	11	15	18.25	78.26
	Secon cycle	87	16.09	6.85	11	14	19	81.44

Subject taught	Italian/Foreign Languages/Law/Philosophy/History/Geography	70	16.6	6.53	12	15	20	81.92
	Mathematics/Physics/Chemistry/Biology/Science	21	13.7	3.92	11	12	16	79.76
	Technology/Computer Science/Mechanics and similar	8	14	5.24	10	12	17.3	63.13
	Specialised subjects (Vocational Institutes)	5	21.8	12.36	13	16	29	69.7
	Physical Education	5	15	6.71	8	18	18	85.3
	Art/Music/Design and similar	3	15	1.73	14	14	15.5	124.17
	Other	47	15.3	6.29	10.5	14	18.5	77.83

Table 2: Smartphone Addiction score by independent variables: Age, Years of service, School type, School cycle and subject taught

5. Discussion

From the results analysis of the first research question *about possible variations in smartphone use among teachers*, it seems that there was no significant difference in smartphone use based on the type of school (primary, middle, high school) or the subject taught. Conversely, younger teachers (aged 25-34) used their smartphones significantly more hours per day compared to older teachers (aged 55-64 and above). Teachers with fewer years of service (1-5 years) used their smartphones significantly more hours per day compared to those with more experience (26-30+ years). This is corroborated by numerous studies that have demonstrated that smartphones have become an indispensable tool in users' lives but younger individuals, also those aspiring to become teachers, exhibited higher levels of engagement and potential addiction, reflecting their early exposure to and dependency on smartphones for both personal and professional purposes (Ruiz-Palmero et al., 2019). Another study examining age differences in preservice teachers' perceptions and use of mobile phones in the classroom, indicated that older teachers were less likely to support their use for educational purposes compared to their younger counterparts (O'Bannon & Thomas, 2014).

We can think to some potential reasons behind these differences:

a) Familiarity and lifestyle with technology: younger teachers have had early exposure to smartphones, making them more comfortable and dependent on these devices for their personal and professional activities, while older teachers may not feel as compelled to integrate smartphones into their daily routines.
b) Professional development and networking: younger teachers may be more likely to use smartphones for professional development opportunities, networking through social media, and discovering and referencing classroom resources.
c) Work-life integration: younger or less experienced teachers may not have established clear work-life boundaries, leading to more frequent use of smartphones for work-related activities during or outside school hours.

The result of the second research question, about *the relationship between teachers' perceptions of appropriate smartphone use and their actual reported use* evidence an interesting difference as teachers generally use their smartphones more than they think is appropriate.

Specifically, a median smartphone use of 3 hours indicates that at least half of the respondents use their smartphone more than 3 hours per day (exactly 60.4% use it for at least 3 hours), while the median perceived appropriate use was only 2 hours per day (exactly 75.4% of teachers indicate an appropriate use of 2 hours or less). This might suggest a gap between ideal and actual behaviour, where even if teachers know they should limit their usage, they find it challenging to do so in practice may be due to habit, necessity, or lack of self-regulation. In this context, however, it should be noted that people often tend to underestimate rather than overestimate the hours spent with the smartphone as significant discrepancies have often been found in many studies between actual usage and users' retrospective estimates so the hours really spent can be higher (Wilcockson, 2018; Sewall et al., 2020; Elhai et al., 2018). In this sense there could be a "self-serving bias", where teachers justify their actual high smartphone use by aligning their

perceptions of appropriate use: this rationalisation helps them feel better about their behaviour, reducing the cognitive dissonance that comes from the mismatch between their actual use and their initial beliefs about what is appropriate. This kind of bias can make it hard to recognise the need for change or to take action to reduce their usage because they have adjusted their standards to justify their current habits. Anyway, most respondents see value in seminars for both students and teachers on managing SA and understanding its impact on their own teaching/school performances and social life.

The results of the last research question, on *teachers' perceptions of the impact of smartphone use on their professional work and personal well-being*, revealed that younger teachers were more at risk of SA, which was also associated with higher smartphone use and difficulty to concentrate at work.

Some studies report the impact of problematic or excessive smartphone use on teachers' work lives for example highlighting how it predicts burnout (Varanasi, et al., 2021) or to have a critical relationship with work-life balance, personal life and job satisfaction (Jan et al., 2022) and the life satisfaction (Catherene, 2018). Younger teachers (aged 25-34) had significantly higher scores on the Smartphone Addiction Teacher Scale compared to older teachers (aged 45-54 and 55-64+). We can think that older teachers may have more self-regulation skills to manage smartphone interruptions. There was also a moderate positive correlation between SA scores and both

1) self-reported daily hours of actual smartphone use and
2) difficulties concentrating on work/study activities.

Furthermore, the answers of some addiction scale items, such as "I feel impatient and irritable if I don't have my phone" (mean = 1.92) and "I would never give up using my smartphone since my daily life is very influenced by it" (mean = 2.42), indicates that a significant number of teachers perceive their well-being and emotional state to be influenced by their smartphone usage. Finally, it's important to note that also this data did not show significant differences in addiction levels based on years of teaching experience, school type, or subjects taught.

6. Conclusion

The findings of this research offer insights into the complex relationship between smartphone use and teacher well-being. There is a generational divide, with younger teachers exhibiting significantly higher levels of smartphone engagement and addiction compared to their more experienced counterparts. The study also reveals a concerning paradox: while teachers acknowledge the need for moderation in smartphone usage, their actual behaviours often deviate from this understanding. This discrepancy between perceived appropriate use and real-world practices suggests the presence of cognitive dissonance, potentially exacerbated by the habitual nature of smartphone interactions or a lack of effective self-regulation strategies.

Excessive smartphone use may impede professional efficacy, particularly among younger teachers. The correlation between high SA scores and difficulties in maintaining concentration during work activities raises concerns about the potential impact on the quality of education delivered. This situation not only undermines individual teaching practices, but it is also critical for the learning environment of the students. To effectively mitigate the issues arising from SA, it is essential for educational institutions and policy-makers to prioritise the implementation of structured programs that address this concern among both teachers and students. These programs should be designed with three main objectives: firstly, to raise awareness among teachers about the risks associated with excessive smartphone use; secondly, to equip them with practical strategies for managing their digital habits; and thirdly, to encourage them to model and promote these practices among their students, fostering a healthier balance between smartphone use and their professional and educational responsibilities.

At the same time, it's important to acknowledge the potential for smartphones to be used productively in the classroom. By integrating smartphones as educational tools when appropriate, teachers and students can enhance learning experiences while also becoming aware of the risks of excessive use. This balanced approach helps to ensure that smartphones are used as facilitators of education, not as distractions. This

collaborative approach between teachers and students in managing smartphone habits could set an environment enhancing teacher well-being and, by extension, improving educational outcomes for students.

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