

# Online Professionalism of Facebook Usage in Dental Education: A Retrospective Exploration

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ABSTRACT

**Aims:** Unprofessionalism in the use of Facebook has been found among healthcare professionals including dental students. The improper content may be shared to the public, negatively impacting their professions. This study explored account privacy and professionalism on Facebook usage in conjunction with evaluating whether there were correlations among presence of clinical experience, account privacy, and professionalism. **Materials and Methods:** This study retrospectively explored professionalism in the use of Facebook among Mahidol dental undergraduates in the academic year 2019. The students who had identifiable Facebook and accepted a friend request were included into this study. The content on both “About” and “Wall” sections was examined and analyzed using descriptive statistics and  $\chi^2$  test. **Results:** Facebook profiles of 522 students were identified. There were 382 (73.18%) students who accepted the friend requests, revealing account privacy: 32 (8.38%) private, 200 (52.36%) limited, and 150 (39.27%) public profiles. Clearly unprofessional content was mostly relevant to sharing information of patients (15.97%), followed by parody content of patients (8.9%). Questionably unprofessional misconducts included political discriminations (14.66%), profanity (3.14%), and alcohol consumption (2.88%). Professionalism was found to be significantly correlated with privacy ( $p < 0.001$ ) and clinical experience ( $p < 0.001$ ). **Conclusion:** Unprofessionalism tended to be higher in clinical years, so professionalism should be emphasized constantly throughout the dental program, especially before starting clinical practice. Privacy concerns should also be suggested for students at the beginning of the program.

**KEYWORDS:** Dental education, dental student, Facebook, professionalism, social media

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## INTRODUCTION

Social networking sites (SNSs) appear to be a common way for worldwide communication, where Facebook can be considered as one of the most popular platforms. It allows users to create their profile and post content in a variety of formats such as comment, photo, or video.<sup>[1]</sup> Facebook also has an interesting function called “News feed,” allowing users to view content which is most relevant and recent to

them.<sup>[2]</sup> In addition, Facebook implements a friend connection, constructing a virtual community where users can keep in touch with their friends, who have been granted to access posts and pages of each other.<sup>[3]</sup>

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In terms of privacy, there are security settings allowing users to decide whether their information will be posted privately or publicly.<sup>[1,4]</sup> Public content will be visible to everyone, while a private post will allow only users who have a permission to view it.

Facebook becomes popular for healthcare professionals including dentists and dental students. They use Facebook for both formal and informal purposes. Facebook seems to be one of the most common SNSs for dentists and patients. There is evidence that 36% of the patients searched for their dentists' profiles, and 44% of them felt convenient to contact their dental professions using social media.<sup>[5]</sup> A study found an excessive use of Facebook in a third of dental students.<sup>[6]</sup> Unfortunately, previous studies revealed unprofessionalism on Facebook among healthcare providers which could be viewed by their patients or laypeople, and it may have a negative impact on how they perceive healthcare professions.

A study conducted in Canada reported that unprofessional posts of healthcare students on Facebook were viewed by 44% of their colleagues, and 27% of them posted that kind of content themselves.<sup>[7]</sup> Langenfeld *et al.*<sup>[8]</sup> demonstrated that 26.3% of surgical residencies had clearly and potentially unprofessional content. Another study in the UK reported that 40% of the dental students had questionable and definite unprofessional content on their Facebook.<sup>[4]</sup> Previous research conducted in a group of dental students at Ohio State University College of Dentistry revealed that 5.8% of the Facebook accounts contained unprofessional content.<sup>[9]</sup> These include inappropriate content, such as substance use, misconducts in schools, sexism, racism, profanity, and negative comments toward their patients or staff.

While there was evidence demonstrating online unprofessionalism on Facebook among healthcare professionals, research of this area in dental students was very scarce, especially in Asian countries including Thailand. Different cultures and context may have an impact on online behaviors through SNSs. Moreover, as other studies explored professionalism on the profile page, this study extended the evaluation to the Facebook wall of preclinical and clinical students separately. Consequently, this study was conducted to explore account privacy and online professionalism in the use of Facebook among Mahidol dental students and to examine whether there were correlations among clinical experience, account privacy, and professionalism.

## MATERIALS AND METHODS

### RESEARCH DESIGN

This study employed quantitative research using a retrospectively observational study design to explore

professionalism in the use of Facebook among Mahidol dental undergraduates. This research method allowed the researchers to explore time series data on the social media.

### RESEARCH SUBJECTS

The population in this study was all undergraduate dental students in the academic year 2019 at the Faculty of Dentistry, Mahidol University, Thailand. They were registered in Year 1 to Year 6. The students who had identifiable Facebook were sent a friend request, and the accounts that accepted the request were included into this study. In case that a Facebook account of any student could not be identified, it was assumed that those students did not have a Facebook account. The included students were categorized into two groups based on the presence of clinical experience, which were preclinical and clinical dental students.

### DATA COLLECTION METHODS

A new Facebook account was created using a newly created name in order to represent anyone who was unknown to the students. In addition, the new account which was not on students' friend lists allowed the researchers to examine whether their user profiles were private or public. The data were collected retrospectively from November 1, 2018 to October 31, 2019.

The "About" section was the first part to be explored. It demonstrated personal profiles of Facebook users, including "Picture profile," "Name," "Gender," "Phone number," "Education," "Birthday," "Home town," "Religious view," and "Likes (Liked pages)." These data were collected whether or not they were viewable to the public. "Picture profile" and "Name" would be counted as viewable if students decided to use their identifiable photos and authentic name, respectively.

The "Wall" section was then surveyed to examine privacy and professionalism in the use of Facebook. According to the account privacy, the data regarding posts, photos, videos, shared content, and check-in location were explored to determine privacy settings. The privacy settings were categorized into three groups by comparing data before and after being a Facebook friend in each feature: (1) Private: content before and after being a friend was "different in all features"; (2) Limited: content before and after being a friend was "different in some features"; (3) Public: content before and after being a friend was "not different in all features."

In addition to the account privacy, the "Wall" section was explored to evaluate professionalism in the use of Facebook. The professionalism of each account was categorized into three levels depending on the

unprofessional content found in the “Wall” section: 1. *Clear unprofessionalism*: accounts containing clearly unprofessional content (illegal according to the laws of Thailand such as sharing information or parody content of patients); 2. *Questionable unprofessionalism*: accounts containing questionably unprofessional content (legal but unethical in accordance with the Dental Council of Thailand such as political discrimination or alcohol consumption); 3. *Professionalism*: accounts containing none of any unprofessional content. In case that an account contained both clearly and questionably unprofessional content, it would be considered as clear unprofessionalism. Content was surveyed both before and after being a friend to compare whether or not there were any differences.

The investigation of unprofessional content was performed independently by two researchers (J. J. and T. Se.). Any disagreement between the two investigators was reconsidered and discussed with the other two researchers (D. O. and T. So.), in order to achieve the reconciliation for considering unprofessionalism. The consideration of unprofessional content was verified afterwards by two researchers (T. A. and K. S.) to reduce an information bias.

**DATA ANALYSES**

The analysis of research data was performed using the Statistical Package for the Social Sciences. Descriptive statistics were used to present overview of the data regarding clear and questionable unprofessionalism. The  $\chi^2$  test was employed to examine whether or not there were significant correlations among clinical experience (academic year), account privacy, and the number of accounts with unprofessional content.

**ETHICAL CONSIDERATION**

In order to maintain natural or real behaviors in the use of Facebook among our participants, an informed consent process was not applied in this research. However, the data retrieved from the Facebook account were coded and stored in a password-protected file prior to an analysis process. In addition, no identifiable data would be publicly presented. This research was approved by the Faculty of Dentistry and the Faculty of Pharmacy, Mahidol University, Institutional Review

Board (MU-DT/PY-IRB), reference number: MU-DT/PY-IRB 2019/059.3008 on August 30, 2019.

**RESULTS**

**RESEARCH SUBJECTS**

Of those 545 Mahidol dental students, 522 Facebook accounts were identified, representing 95.78% of the population. Those identifiable accounts belonged to 232 (93.55%) preclinical and 290 (97.64%) clinical students. A friend request was sent to all identifiable accounts, of which there were 382 (73.18%) students who accepted the requests.

**ACCESS TO USER PROFILES**

According to the “About” section, the data regarding “Picture profile,” “Name,” “Gender,” “Phone number,” “Education,” “Birthday,” “Home town,” “Religious view,” and “Likes (Liked pages)” were explored to see whether any of them were displayed to the public. Of the 382 accounts which accepted the friend request, the three most commonly shared fields were “Identifiable profile picture” (91.76%), “Gender” (88.12%), and “Liked page” (83.33%). In contrast, the three least common contents included “Phone number” (0.19%), “Religious view” (1.53%), and “Birthday” (12.07%). Interestingly, fewer than three-quarters revealed their education (70.88%) and authentic names (67.62%).

**PRIVACY**

According to the account privacy [Table 1], content on the “Timeline” section of each account was compared before and after being a Facebook friend. According to the 382 students who accepted the friend requests, the results revealed that more than a half of the accounts (52.36%) had “limited” privacy, whereas “private” privacy was found in only 32 (8.38%) users. There were 150 (39.27%) accounts with “public” privacy, which seemed to be higher in the clinical students ( $n = 98$ ; 41.53%), compared with the preclinical group ( $n = 52$ ; 35.62%). Although the trend of “private” privacy was likely to be rising in the clinical academic year, no significant correlation was found ( $p > 0.05$ ).

**PROFESSIONALISM IN THE USE OF FACEBOOK**

This section explored unprofessionalism in the use of Facebook, which was categorized into “Clearly unprofessional content” and “Questionably

**Table 1: Account privacy and its correlation between clinical experience and privacy ( $n = 382$ )**

Groups	Private, $n$ (%)	Limited, $n$ (%)	Public, $n$ (%)	Total	$p$ -value
Preclinical	9 (6.16%)	85 (58.22%)	52 (35.62%)	146	>0.05
Clinical	23 (9.75%)	115 (48.73%)	98 (41.53%)	236	
Total	32 (8.38%)	200 (52.36%)	150 (39.27%)	382	

unprofessional content.” As discussed in the Materials and Methods, the data were explored in two stages: before and after being a Facebook friend.

**Clearly unprofessional content**

According to Table 2, it could be seen that more accounts with clear unprofessionalism were revealed after the friend requests were accepted. Revealing information of patients seemed to be the most common content of clear unprofessionalism, which was found in 61 (15.97%) accounts, followed by posting inappropriate content about patient parodies (8.9%). There was no content with “Drug abuse,” “Extremely alcohol consumption,” or “Alcoholic drink with trademark” in any groups. Overall, after

being a Facebook friend, the number of accounts with clearly unprofessional content increased from 18 (4.71%) to 83 (21.73%).

**Questionably unprofessional content**

The accounts with questionable unprofessionalism were increasingly found from 29 (7.59%) to 42 (10.99%) accounts after the friend requests were accepted. “Political discrimination” was the most common content, which was found in 56 (14.66%) accounts. “Profanity” was the second most common questionably unprofessional content with 12 accounts (3.14%), followed by “Alcohol consumption” (11 accounts; 2.88%). The percentage of accounts with questionably unprofessional content was slightly greater in the

**Table 2: Clearly unprofessional content (n = 382)**

Unprofessional content	Preclinical (n=146)		Clinical (n=236)		Total: after being a Facebook friend, n (%)
	Before being a Facebook friend, n (%)	After being a Facebook friend, n (%)	Before being a Facebook friend, n (%)	After being a Facebook friend, n (%)	
1. Information of patients	2 (1.37%)	2 (1.37%)	11 (4.66%)	59 (25.00%)	61 (15.97%)
2. Parody content of patients	0	1 (0.68%)	3 (1.27%)	33 (13.98%)	34 (8.90%)
3. Disrespect to instructors or colleagues	1 (0.68%)	6 (4.11%)	1 (0.42%)	4 (1.69%)	10 (2.62%)
4. Complaint about patients	0	0	2 (0.85%)	4 (1.69%)	4 (1.05%)
5. Drug abuse	0	0	0	0	0
6. Excessive alcohol consumption	0	0	0	0	0
7. Alcoholic drink with trademark	0	0	0	0	0
8. Other illegal content	0	2 (1.37%)	0	2 (0.85%)	4 (1.05%)

**Table 3: Questionably unprofessional content (n = 382)**

Unprofessional content	Preclinical (n=146)		Clinical (n=236)		Total: after being a Facebook friend, n (%)
	Before being a Facebook friend, n (%)	After being a Facebook friend, n (%)	Before being a Facebook friend, n (%)	After being a Facebook friend, n (%)	
1. Political discrimination	11 (7.53%)	20 (13.70%)	12 (5.08%)	36 (15.25%)	56 (14.66%)
2. Profanity	1 (0.68%)	3 (2.05%)	2 (0.85%)	9 (3.81%)	12 (3.14%)
3. Alcohol consumption	1 (0.68%)	1 (0.68%)	5 (2.12%)	10 (4.24%)	11 (2.88%)
4. Misconduct in dental schools	2 (1.37%)	2 (1.37%)	4 (1.69%)	7 (2.97%)	9 (2.36%)
5. Religion comment	2 (1.37%)	5 (3.42%)	3 (1.27%)	4 (1.69%)	9 (2.36%)
6. Partial nudity	0	1 (0.68%)	1 (0.42%)	6 (2.54%)	7 (1.83%)
7. Sexism	1 (0.68%)	2 (1.37%)	1 (0.42%)	2 (0.85%)	4 (1.05%)
8. Violent content	1 (0.68%)	2 (1.37%)	0	1 (0.42%)	3 (0.79%)
9. Smoking	0	0	0	0	0
10. Racism	0	0	0	0	0
11. Other questionably unprofessional content	0	0	1 (0.42%)	2 (0.85%)	2 (0.52%)

clinical group, when compared with students in the preclinical phase. These results are demonstrated in Table 3.

**Correlation between unprofessionalism and clinical experience**

According to Table 4, there was a significant correlation between unprofessionalism and clinical experience ( $p < 0.001$ ). The trend demonstrated that unprofessional content was likely to increase in higher academic years.

**Correlation between unprofessionalism and privacy**

Clear unprofessionalism was found in 49 (32.67%) accounts with public privacy, 32 (16.0%) accounts with limited privacy, and 2 (6.25%) accounts with private privacy [Table 5]. There were 15 (10.0%) accounts with public privacy, 25 (12.5%) accounts with limited privacy, and 2 (6.25%) accounts with private privacy which were considered as questionable unprofessionalism. A significant correlation between unprofessionalism and privacy was found ( $p < 0.001$ ), of which the number of accounts with unprofessionalism was likely to be higher with more public privacy settings.

**DISCUSSION**

**FACEBOOK USERS**

The results demonstrated that 522 Facebook accounts were identified, implying that at least 95.78% of the Mahidol dental students were Facebook users. The proportion of Facebook users in this study was higher than the percentages of other studies in dental education, which were less than two-thirds.<sup>[4,9]</sup> In Thailand, there was a study reporting that 85% of the university students had a Facebook account for more than a year,<sup>[10]</sup> and research in medical students reported that 77% of them often used Facebook.<sup>[11]</sup> Interestingly, there was evidence that patients had searched for social network of their medical or dental professionals and sent a friend request.<sup>[5]</sup> This implies that Facebook

profiles of dental students can also be searched by their patients, so that professionalism in Facebook is considered important.

**PERSONAL INFORMATION AVAILABLE TO THE PUBLIC**

Approximately 30% of the students in this study did not use their authentic names, preventing their patients to search their Facebook using their names. However, most students used their authentic names, which might result from the Facebook policy requiring users to use their authentic names to prevent phishing or impersonation.<sup>[12]</sup> Although users were not required to use their photos for “Profile picture,” people tended to use their identifiable profile pictures, as shown in this research and other studies.<sup>[9,13]</sup> “Education” was another point to be concerned, as it could help patients identify Facebook profiles of the students. This issue should be considered, as it may negatively impact the college reputation if any unprofessional content is shared to the public.

According to “Gender,” Facebook allowed users to select their gender more than 50 options, rather than just male and female. Interestingly, no gender specified in all identifiable accounts mismatched to their users in this study. In other words, no students decided to use any alternative genders for their Facebook. Although there are positive changes of gender diversity, this issue is still considered sensitive in Thailand.<sup>[14,15]</sup> Therefore, there was no question regarding this issue among those identifiable Facebook accounts.

Only a few students shared their phone number and nobody revealed postal address to the public. This implied that they were aware of sharing their contact information. As there is a chance that patients may search information about healthcare professionals,<sup>[7,16]</sup> they will be able to contact their doctors or dentists directly if they get phone numbers or postal addresses from Facebook, leading to an invasion of privacy.

**Table 4: Correlation between unprofessionalism and clinical experience (n = 382)**

Groups	Professionalism, n (%)	Questionable unprofessionalism, n (%)	Clear unprofessionalism, n (%)	p-value
Preclinical (n=146)	116 (79.45%)	19 (13.01%)	11 (7.53%)	<0.001
Clinical (n=236)	141 (59.75%)	23 (9.75%)	72 (30.51%)	
<b>Total</b>	<b>257 (67.28%)</b>	<b>42 (10.99%)</b>	<b>83 (21.73%)</b>	

**Table 5: Correlation between unprofessionalism and privacy (n = 382)**

Privacy	Professionalism, n (%)	Questionable unprofessionalism, n (%)	Clear unprofessionalism, n (%)	p-value
Public (n=150)	86 (57.33 %)	15 (10.00%)	49 (32.67%)	<0.001
Limited (n=200)	143 (71.50%)	25 (12.50%)	32 (16.00%)	
Private (n=32)	28 (87.50%)	2 (6.25%)	2 (6.25%)	
<b>Total</b>	<b>257 (67.28%)</b>	<b>42 (10.99%)</b>	<b>83 (21.73%)</b>	

### ACCOUNT PRIVACY IN THE USE OF FACEBOOK

Account privacy seemed to be an issue to be concerned, as the results showed that fewer than 10% of the participants set their accounts to be private, and therefore there were more chances that patients might see unprofessional content in Facebook. The proportion of accounts with public privacy in this study (39.27%) was approximately equal to the study of MacDonald *et al.*<sup>[3]</sup> Although account privacy was not the main focus of this study, this issue was unavoidable, as there were more chances that unprofessional content of public accounts would be revealed or shared to unknown people including patients.

### PROFESSIONALISM IN THE USE OF FACEBOOK

The most common improper content was relating to sharing information of patients in a variety of formats, including texts, photos, and X-rays. These issues were also found in previous studies.<sup>[3,11,17,18]</sup> However, the percentage of these accounts was not quite high, and the students were likely to share patient information with positive purposes, such as to share knowledge or to get comments about their works. The clearly unprofessional content to be concerned was “Parody content of patients” and “Complaint about patients,” which could negatively affect perceptions of patients toward dental students. These posts were considered inappropriate, although they were anonymous.<sup>[19]</sup>

Content which was disrespectful to instructors or colleagues was another problem. Sometimes students posted this kind of content, because they felt frustrated or stressful and expected that there might be someone who understood them saw it.<sup>[20]</sup> Therefore, awareness of this problem should be raised for students.

Political discriminations were to be found the most common content of questionable unprofessionalism (14.66%). This might be associated with the Thai House of Representatives election in 2019, which was the first time during a 5-year period and the first time for most of the students. Therefore, the students were quite interested in this topic and used Facebook as a virtual space to share their political views. An issue of political discrimination on Facebook was also found in Thai medical students.<sup>[11]</sup>

Alcohol consumption seemed to be a good point among Mahidol dental students. No post of excessive alcohol consumption was found, and only 2.88% of Facebook profiles contained content about alcohol drinks (1–2 drinks shown). However, this problem was likely to be the common unprofessionalism in other researches.<sup>[3,4,8,9,18,21]</sup> As alcohol consumption was considered as a health-destructive behavior and healthcare professionals were expected to be a role model,<sup>[19]</sup> posts of students

drinking alcohol would negatively affect their images and therefore it was considered as unprofessionalism.

### SUGGESTIONS TO DENTAL CURRICULUM

Account privacy can impact not only professionalism but also securities, so awareness of account privacy should be raised for healthcare students. There seem to be many events where awareness of online risks can be raised, such as an orientation in the first year, policies or guidelines provided by institutions, discussions with friends and instructors.<sup>[11,20]</sup> Implementation of a social media policy at the beginning of a program can positively impact awareness of privacy settings of Facebook.<sup>[22]</sup> Reinforcement should be required especially before clinical practice. Another point to be concerned was that students might prefer not to be connected with faculty staff,<sup>[23]</sup> so they would rather not to be a Facebook friend with their instructors. Therefore, unprofessional content may not be seen by the faculty staff.

### LIMITATIONS AND RECOMMENDATIONS

This research did not evaluate the frequency of unprofessional content in each account. In case that further studies aim to include the frequency into the analysis, the valid and reliable criteria or scoring rubric of various kinds of unprofessionalism should be required for comprehensive evaluation, as different degrees of unprofessional content cannot be weighed equally. In addition, due to the limitations of a quantitative research, qualitative studies are required to explore further in-depth information such as reasons of any misconducts in the use of social media. Further research should also be conducted in a group of patients to examine their perceptions toward unprofessional content. This will allow us to understand how unprofessionalism is considered from the patient’s point of view, which may be different from perspectives of healthcare professionals. Furthermore, research regarding professionalism in other SNSs, such as Instagram and Twitter, is recommended.

### CONCLUSION

Unprofessionalism in the use of Facebook among Mahidol dental students had been found since the preclinical phase, and it seemed to be higher in clinical years. Account privacy should also be emphasized for students, as public settings might allow patients to identify their accounts and to view content on the wall page. Consequently, awareness of online professionalism should be raised throughout the dental program, especially at the beginning of the program and before starting clinical practice.

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## CONFLICTS OF INTEREST

There are no conflicts of interest.

## AUTHORS CONTRIBUTIONS

Conceptualization: T.A. and K.S.; methodology: T.A. and K.S.; investigation: J.J., T.Se., D.O., and T.So.; validation: T.A. and K.S.; data analysis: T.A., J.J., T.Se., D.O., T.So., and K.S.; manuscript writing: T.A., J.J., T.Se., D.O., and T.So.; manuscript review and editing: K.S. All authors have read and agreed to the published version of the manuscript.

## ETHICAL POLICY AND INSTITUTIONAL REVIEW BOARD STATEMENT

This research was approved by the Faculty of Dentistry and the Faculty of Pharmacy, Mahidol University, Institutional Review Board (MU-DT/PY-IRB), reference number: MU-DT/PY-IRB 2019/059.3008 on August 30, 2019.

## PATIENT DECLARATION OF CONSENT

In order to maintain natural or real behaviors in the use of Facebook among our participants, an informed consent process was not applied in this research. This was approved by the Faculty of Dentistry and the Faculty of Pharmacy, Mahidol University, Institutional Review Board (MU-DT/PY-IRB), reference number: MU-DT/PY-IRB 2019/059.3008 on August 30, 2019.

## DATA AVAILABILITY STATEMENT

The data are available on request from the corresponding author.

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