Web resources as support in nursing education

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Abstract. *Background and aim:* Social media have become an integral part of daily life for individuals of all ages, including university students. They are not only used for social purposes but can also be integrated into education, expanding methodology and enhancing learning. The aim of the study was to analyze the role that Web 2.0 resources play in the learning process of nursing students. *Methods:* An observational study was conducted using a validated questionnaire, administered to a sample of 104 students from the University of Parma, specifically from the Faculty of Nursing, including first, second, and third-year students. *Results:* The study revealed that the majority of students use visual resources from the web to learn nursing procedures, with a strong preference for video resources from the YouTube® platform. *Discussion and conclusion:* This study highlighted the significant potential of audio-visual content, which can be effectively utilized to expand learning methodologies for clinical and nursing procedures within the university setting. In the future, it would be interesting to propose the creation of a dedicated YouTube® channel at the University of Parma, where self-produced nursing-related material could be shared, as well as further investigate the topic from the perspective of the teaching staff. (www.actabiomedica.it)

Key words: education, nurs* education, nursing students, You Tube, social media, web

Introduction

Social media have become an integral part of daily life, particularly since the advent of Web 2.0 in 2004, which facilitated online interaction across various devices such as smartphones and tablets (1). The vast majority of Americans (85%) now use the internet, with 65% of adults and 90% of young people aged between 18 and 29 engaging with social media platforms (2). A significant proportion of nursing students (over 80%) are millennials, a generation accustomed to daily use of technology (3). Among the most widely used social media platforms in the educational context are Facebook®, YouTube®, and WhatsApp® (4) which have emerged as tools capable of offering innovative learning opportunities for nursing, addressing the needs of new generations of

students (5). The use of social media has been shown to enhance retention, improve focus on content, and foster a sense of community (4). YouTube® stands out as the leading platform for sharing educational video content and improving students' clinical skills (6), attracting over 1.5 billion monthly users (7). It is also utilised by academics to supplement classroom teaching, enabling students to learn at their own pace and revisit videos and materials as needed (8), making video-based learning a valuable complement to traditional in-person one (9). Several studies have highligthed that Facebook® and YouTube® are among the most frequently used social media platforms by nursing students for their daily educational support (10). Educational videos provide a visual representation of clinical care situations in a safe, controlled environment, anywhere and at anytime and anywhere (11),

thereby maintaining student engagement (12,13). Moreover, students who viewed educational videos of clinical situations not yet encountered or prior to practical sessions, performed better than those who viewed videos only afterwards (14,15). However, video-based learning has its limitations, as highlighted by Pilieci et al., who suggest integrating videos with hands-on activities to bridge the gap between theory and practice (9). Despite growing interest and encouraging evidence, current literature does not provide a comprehensive picture of how nursing students perceive the use of social media-based videos for learning, nor how these tools influence their practical training. Furthermore, few studies have examined the potential risks and challenges associated with the unsupervised and unregulated use of such resources in educational settings, particularly privacy, content quality, accuracy and the lack of academic oversight and guidelines (16-18). This underlines the need to cultivate a culture of digital responsibility in nursing, in order to prevent harm to privacy and professionalism (3). From the literature, it would appear that adequate training in the use of social media could enhance their effectiveness in education, potentially benefiting both students and educators (19). Similarly, web-based learning might be increasingly adopted in universities as a supplementary tool to traditional methods, aiming to foster a more dynamic and interactive approach to knowledge acquisition (20). Consequently, the combination of traditional teaching techniques with innovative online methods, such as the use of social media and educational videos, may represent a promising strategy for improving the quality of nursing education. Building on this established understanding from the literature, the present work proceeds to detail the study's methodology, including ethical considerations, study design, setting, sample, procedures, and the instrument employed. This is followed by the presentation of the results, which are then discussed in relation to the existing literature, focusing on both the benefits and challenges of using YouTube® as an educational tool in nursing education. Finally, the article concludes with a summary of the key findings, implications for teaching practices, and recommendations for future research.

Objective

This study aims to investigate the role of the web resource YouTube® in the learning processes of nursing students at a University in northern Italy. Specifically, it seeks to explore the extent to which nursing students use YouTube® as an educational tool during their studies, to examine their practices regarding the use of YouTube® and social media as supplements to traditional teaching methods, and to identify the academic subjects or topics for which web-based resources are most frequently employed.

Method

Ethical implications

Prior approval was obtained from the Research Ethics Board (REB) for non-medical research involving human participants at the University (Prot. No. 0198257, 12 July 2023). Participation was voluntary; all participants, who were university students, were informed that the information provided would be kept strictly confidential and used solely for research purposes. Additionally, it was clarified that no personal data would be used to identify the participants (in accordance with EU Regulation No. 2016/679, issued on 27 April 2016, published in the Official Journal of the European Union on 4 May 2016, which came into effect on 25 May 2016). Consent to participate in the study was based on the voluntary completion and submission of the questionnaire once it was fully completed.

Study design

An observational and descriptive study was conducted between July and September 2023, at the end of the second semester of classes across the three academic years of the nursing program.

Setting

The study was carried out with a sample of nursing students from a university in northern Italy, encompassing first, second, and third-year students.

Sample

The study was conducted with a sample of 104 students enrolled in a Bachelor of Nursing degree program. Two selection criteria were applied: participants were required to be of legal age and to have attended lectures and laboratory sessions continuously, in accordance with the program, to ensure that the investigation focused on a population that could reasonably have sought additional support for their studies on the topics covered. This was particularly relevant to the nursing practice undertaken within the university's simulation laboratories.

Procedure

Students were invited to participate in the study voluntarily and free of charge via a link sent to their official university email addresses, enabling them to complete a questionnaire created using Microsoft Forms®. The invitation email explicitly referenced the privacy regulations (as detailed above), emphasizing that the study design did not involve data collection through invasive or intrusive methods. It was further clarified that no sensitive data capable of identifying participants would be collected or disseminated. Additionally, it was specified that the data would be processed and used solely for scientific and statistical purposes, in compliance with current data protection legislation. The platform used to receive responses was configured to exclude the collection of email addresses, thereby ensuring participant anonymity.

Instrument

The study was conducted using a semi-structured questionnaire that was linguistically validated following the method suggested by Beaton et al. (21). According to this method, the purpose of linguistic validation is to produce a translated version of a questionnaire originally developed in a given language, ensuring that the translated version is conceptually equivalent to the original, with particular attention to maintaining clarity and ease of comprehension. During the first phase (forward translation), the original English-language instrument was translated into Italian ("target language") by three researchers. After finalising the version item by item (pooled) and reaching a majority consensus on any remaining discrepancies, the back-translation phase was initiated, involving two independent translators: one researcher, a native speaker of the "source language", and a bilingual speaker of the "target language", both of whom had no access to the original questionnaire. The "pooled" version was then compared with the original version of the instrument. No substantial modifications were required, and consequently, the process concluded with a pilot test involving a small number of students (n = 6), all native speakers of the "target language". This was followed by a face-to-face interview, during which any difficulties in understanding the items were assessed, alongside verification of the interpretation given to each question. No comprehension issues were identified, and the investigation proceeded with the administration of the questionnaire to the full sample (n = 21). The final version of the instrument consisted of several sections (Appendix 1). After a brief introduction and description of the study, the questionnaire included questions regarding age, academic year, and gender, with dichotomous response options (for age) *and three-option responses* (for academic year and gender). This was followed by 13 additional items, which could be categorized into the following areas:

- *Frequency of use of devices for recreational purposes and/or internet access*
- *Frequency of access to educational resources via the internet*
- *Nursing procedures studied with the aid of online resources*
- *Sharing of information with peers*
- *Discussion with tutors/instructors regarding the material consulted*
- *Evaluation of the scientific validity of the educational resources consulted.*

The response formats varied: multiple-choice responses (items 1-2-3-5-6-7-13); two example questions: "*If you find these resources contradict what you learn from textbooks, faculty resources, and clinical instructors, what will you do?*" and "*Have you ever learned any clinical procedure from any type of Internet visual?*");

dichotomous responses (items 8-9; an example question: "*Have you ever shared/discussed the online resources with any classmate?*"); open-ended responses with a maximum of three options (item 4: "*Which clinical procedures have you learned through Internet visual resources?*"). For four items (10-11-12), responses were based on a Likert scale from 1 (not at all) to 10 (very much), with an example question: "*How much do you think the procedures demonstrated are accurate* (i.e., in line with well-accepted practices)?"

The questionnaires were sent to 447 students enrolled in the 2022/2023 academic courses, and a total of 104 completed questionnaires were returned (23.6%)

Data analyses strategy

The initial data were recorded in Microsoft Excel®. They were subsequently exported to the IBM SPSS® Statistics software package, Version 27.0.1, where descriptive analyses were performed. When appropriate, measures of central tendency (mean, median, and ± standard deviation), chi-square tests (χ^2), and binomial tests for a single sample were computed.

Results

Table 1 presents the demographic data of the sample, which is notably skewed in favour of female participants (n = 82; 78.8%) compared to male participants (n = 21; 20.1%), with one participant choosing not to respond. These data align with the gender distribution of the total enrolment in the Bachelor of Nursing degree programme (approximately a 4:1 ratio). Regarding the academic year, there is a near-equal balance between second-year and third-year students (n = 43; 41.3% each), while first-year students are fewer in number (n = 15; 14.4%). Due to the small number of students who were repeaters (n = 3; 3.0%), all of whom were female, these students were excluded from the analyses.

Students were asked to indicate the cumulative number of hours they typically spend each day using various electronic devices. Table 2 presents the distribution of responses across the three academic years. The highest concentration of usage falls within the 2–4 hours per day range (*n* = 39; 38.6%), with a total of 75 students (74.2%, approximately three-quarters of the sample) reporting a daily usage between 1 and 4 hours. Only 2 students (2.0%) reported using electronic devices for less than one hour per day, whereas as many as 16 students (15.9%) indicated a daily usage of at least 6 hours. A statistical comparison using the chi-square test was deemed methodologically inappropriate, owing to the presence of expected frequencies < 5 in more than 20% of the cells, both in the individual categories and in the aggregated dataset (22).

Table 1. Sample characteristics

Gender	N	%
Female	82	78,8
Male	21	20,1
I prefer not to answer	1	1,0
Year of course		
1° year	15	14,4
2° year	43	41,3
3° year	43	41,3
3° anno	3	3.0
Total	**104**	**100**

Table 2. Answers per year to question 1: How many hours a day (cumulative) do you spend on your smartphone, PC, tablet, and/or playing games (es. Playstation®, Xbox®, Nintendo®)?

Year of course	< 1 h	1-2 h	> 2-4h	> 4-6h	> 6- 8h	> 8h	Total
1°year	1	5	3	2	1	3	15
2°year	1	16	17	3	1	5	43
3°year	0	15	19	3	1	5	43
Total/column %	**2 (2.0%)**	**36 (35.6%)**	**39 (38.6%)**	**8 (7.9%)**	**3 (3.0%)**	**13 (12.9%)**	**101**

Table 3. Answers to question 2: Have you ever learnt any clinical procedure from any type of Internet visual resources?

Visual resources	N	%
Video	95	46.3
Graphic illustration (images showing the procedures in stages)	47	22.9
Photos that illustrate the sequence of the procedure	39	19.0
Animation	19	9.3
Other web visual resources	4	2.0
Never used visual resources	1	0.5
Total	**205**	**100**

Table 4. Answers to the question 3: From what sources did you get access to the Internet visual materials?

Internet sources	N	%
Youtube®	93	46.3
Others websites/Social networks	44	21.9
Websites of other Universities	31	15.4
Manufactures's guidelines	19	9.5
Blog	9	4.5
Others resources	4	2.0
Never used online visual resources for learning clinical procedures	1	0.5
Total	**201**	**100**

In Question 2, students were asked to indicate, from a list of predefined options, the types of visual resources available on the internet that they consulted to support their learning of clinical procedures. The data presented reflect cumulative responses, as multiple selections were permitted. As illustrated in Table 3, the highest frequency was observed in the video category (n = 95), followed by graphic illustrations (n = 47), and photographic sequences of the procedure (n = 39). It is noteworthy that only one respondent indicated never having used any online resources. More specifically, among the 23 unique combinations identified, 31 students reported using only videos as their sole visual aid for learning clinical procedures. Additionally, 15 students selected both videos and graphic illustrations; 9 indicated the use of videos, graphic illustrations, and photographic sequences; and 7 reported using both videos and animations. It is of particular interest that the video format appeared in nearly all of the multi-option responses.

Students were asked from which sources they had accessed visual materials on the internet as support for learning clinical procedures. Among the responses provided (multiple answers were allowed, Table 4), YouTube® emerges as the most consulted platform by nearly the entire sample (n = 93). Other common sources include other websites and social networks, though with less than half the preference (n = 44) compared to YouTube®. It is interesting to note that many students reported consulting websites of other

universities (n = 31), while only one person again indicated that they had never accessed online resources for learning clinical procedures.

Table 5 presents the data from the only open-ended question (with a maximum of three response options) in the questionnaire. From the combined responses, 69 procedures were identified; almost all of these are part of the academic programme for the laboratory courses in the three-year curriculum. The most frequently mentioned procedure is the introduction of the nasogastric tube, which is likely perceived as one of the most difficult to learn and perform. This is followed by the insertion of the urinary catheter (n = 19; 13%), peripheral venous access (n = 17; 12%), venous blood sampling (n = 16; 11%), and arterial puncture for blood gas analysis (n = 15; 10%). Two students (1%) indicated a consultation for all procedures included in the programme, while an equal number of students reported none.

Among the numerous visual resources available on the web regarding preventive measures, many focus, for example, on proper handwashing (Table 6). Just under half of the responses are concentrated on hygiene instructions (n = 65; 43.6%), with all other categories following at a greater distance. It is worth noting that several students reported not using visual resources for procedures/topics related to prevention (n = 13; 8.7%).

Table 7 presents the results of students' opinions regarding the reasons why they would turn to online resources (multiple responses were allowed). Students appear to be inclined to use such resources primarily to

Table 5. Answers to the question 4: Which clinical procedures did you ever learn through Internet visual resources?

Clinical procedures	N	%
Nasogastric Tube	21	13.9
Urinary Catheter	19	12.6
Peripheral Venous Access	17	11.3
Arterial Blood Gas Analysis	16	10.6
Venous Blood Sample	15	9.9
Administration of Medications (IV, IM, etc.)	12	7.9
Dressings (surgical, LDP, PICC, PEG, advanced)	6	4.0
Central Venous Catheter	5	3.3
Electrocardiogram	4	2.6
Assessment A/B/C/D/E	3	2.0
All those from the educational programme	3	2.0
8 procedures (Endotracheal Intubation, Oxygen Therapy, Bandaging, Aerosol Therapy, Hand Hygiene, Bedside Patient Hygiene, Vital Signs Measurement, PICC)	2	10.6*
6 procedures (CPR, Blood Glucose Testing, PEG Management, NIV, Valsalva Maneuver, Paracentesis, Pharmacodynamics)	2	7.9*
No procedure	2	1,3
Total	**151**	**100**

Note: *cumulative percentages

Table 6. Answers to the question 5: Did your learning through Internet visual resources include any of the following preventive measures?

Preventive measures	N	%
Hygiene instructions	65	43,6
Lifestyle advice	25	16,8
Other	21	14,1
Vaccination	13	8,7
None	13	8,7
Elderly care	9	6,0
Prenatal advice	3	2,0
Total	**149**	**100**

Table 7. Answers to the question 6: Under what scenarios would you use these resources?

Procedures	N	%
To strenghten skills	72	32.9
Before performing a procedure for the first time	67	30.6
For certain procedures because I have limited opportunities to practice	59	26.9
After performing a procedure for the first time	19	8.7
Other	1	0.5
Never	1	0.5
Total	**219**	**100**

Table 8. Answers to the question 7: You would use these resources for

Procedures	N	%
Some procedures	41	43.2
Most procedures	25	26.3
All procedures	18	18.9
Few procedures	10	10.5
No procedures	1	1,1
Total	**95**	**100**

reinforce the skills acquired in the educational context (n = 72; 32.9%), followed closely by their potential utility as preparation, i.e., before performing procedures for the first time (n = 67; 30.6%), with no significant differences in responses between students from the three academic years. It is interesting to note once again, that only one individual reported never using online resources.

Table 8 provides insight into how many procedures students turn to online resources to support their learning, and consequently, the frequency of their consultations. A total of 95 individuals responded to this question. Of the six options offered, 43 students (45.3%) reported using online resources always or almost always. Additionally, 41 students (43.1%) indicated that they used them for some procedures, meaning that for almost all students (n = 84; 88.3%), it is, in practice, a regular habit. Only one individual reported not using online resources.

Table 9 presents the responses to questions 8, "Have you ever shared or discussed the online resources with any classmate?" and 9, "Have you ever shared or discussed the online resources with any

Table 9. Answers to the question 8 and 9

Sharing	Yes	%	No	%	p-value Yes/No	p-value per year	Total
Have you ever shared / discussed the online resources with any classmate?	77	76.2	24	23.8	<.01	>.05	101
Have you ever shared / discussed the online resources with any tutor/teacher?	29	28.7	72	71.3	<.01	>.05	101

Table 10. Measures of central tendency for items 10-11-12 per year of course

How much do you think the procedures demonstrated are accurate (in line with well accepted practices)?	M	MED	St.Dev	Max	Min	N
1st year	6.79	7.00	1.051	9	5	14
2nd year	7.76	8.00	1.415	10	4	36
3rd year	7.70	8.00	1.043	10	6	40
Total	*7.58*	*8.00*	*1.238*	*10*	*4*	*90*
How will you rate the usefulness of the Internet visual resources in general?	M	MED	St.Dev	Max	Min	N
1st year	7.29	7.50	1.490	10	5	14
2nd year	8.21	8.00	1.409	10	5	36
3rd year	8.30	8.00	1.324	10	5	40
Total	*8.10*	*8.00*	*1.415*	*10*	*5*	*90*
How will you rate the importance of the Internet visual resources as a supplement to learning?	M	MED	St.Dev	Max	Min	N
1st year	7.71	8.00	1.541	10	5	14
2nd year	8.68	9.00	1.273	10	6	34
3rd year	8.38	8.00	1.192	10	5	40
Total	8.39	8.00	1.308	10	5	88

Abbreviations: M = Mean; MED = Median; StDev = Standard Deviation.

tutor/teacher?". Regarding the first question, out of 101 participants, 77 (76.2%) answered "Yes," while 24 (23.8%) answered "No." A one-sample binomial test was conducted, revealing a statistically significant difference in the proportion of "Yes" responses compared to the expected proportion (B = 24.000; Z = -5.174; p < .001). Conversely, no significant statistical differences were found when considering the year of study ($\chi^2(2)$ = 2.821; p > .05), demonstrating the transversal nature of peer sharing, regardless of the level of the training programme. Regarding the second question, the responses were precisely the opposite. Of the 101 respondents, 29 (28.7%) answered "Yes," while 72 (71.3%) answered "No." A one-sample binomial test was again conducted, revealing a statistically significant difference in the proportion of "No" responses compared to the expected proportion (B = 72.000; Z = 4.179; p < .001). As with the first question, no significant statistical differences were found when considering the year of study ($\chi^2(2)$ = 0.547; p > .05), reiterating that just peer comparison remains the most commonly adopted behavior.

Table 10 refers to the central tendency measures for items 10, 11, and 12, which explored students' perceptions - across the three academic years - regarding the accuracy, usefulness, and importance of online visual resources. Responses were provided on a Likert scale from 1 (not at all) to 10 (completely). The

Table 11. Answers to the question 13: If you find these resources contradict to what you learn from textbooks, faculty resources and clinical instructors, what will you do?

Year of course		I'd clarify with tutors / teachers	I'd keep searching for other sources	I'd discuss about with classmates	I'd ignore the Internet visual resources	Other	Total
1st year	2	5 (38.5%)	3 (23.1%)	1 (7.7%)	3 (23.1%)	1 7.7%	13 (100%)
2nd year	3	18 (54.5%)	11 (33.3%)	2 (6.1%)	2 (6.1%)	0	33 (100%)
3rd year		21 (52.5%)	12 (30.0%)	5 (12.5%)	1 (2.5%)	1 (2.5%)	40 (100%)
Total		**44 (51.2%)**	**26 (30.2%)**	**8 (9.3%)**	**6 (7.0%)**	**2 (2.3%)**	**86 (100%)**

Note: in bold italics the percentages of row; in normal text, the percentages of column.

distributional shape of the responses for each item was assessed via the Kolmogorov-Smirnov test with Lilliefors correction, which confirmed that none of the distributions conformed to normality ($p < .01$). For Item 10 ("To what extent do you believe the procedures demonstrated are accurate, i.e., aligned with widely accepted practices?")—based on 90 responses, with 11 missing—the lowest overall mean score was recorded (M = 7.58). This item was also the only one for which the mean was lower than the median (MED = 8.00; StDev = 1.238). A Kruskal-Wallis test comparing the distribution of ranks across the three academic years (1st year = 28.82; 2nd year = 49.03; 3rd year = 48.16) revealed a statistically significant difference (H(2, n = 90) = 7.214, p = 0.027). Subsequent pairwise comparisons indicated significant differences between the 1st and 2nd years (p = 0.042) and between the 1st and 3rd years (p = 0.034), whereas no significant difference emerged between the 2nd and 3rd years (p > 0.05). The 90 responses to Item 11 ("How will you rate the usefulness of the Internet visual resources in general?")—with 11 missing responses—showed a mean score (M = 8.10) higher than the median (MED = 8.00; StDev = 1.415). A Kruskal-Wallis test comparing the total ranks across the three groups (1st year = 32.29; 2nd year = 46.43; 3rd year = 49.29) did not identify any statistically significant differences (p > 0.05). Finally, for Item 12 ("How would you rate the importance of online visual resources as a supplementary learning tool?")—based on 88 responses, with 13 missing—the highest mean score was observed (M = 8.39, MED = 8.00; StDev = 1.308). Once again, the Kruskal-Wallis test comparing the total ranks across the three

academic years (1st year = 33.86; 2nd year = 50.00; 3rd year = 43.55) revealed no statistically significant differences (p > 0.05).

The final question of the administered questionnaire addressed how students would resolve any contradictions between online visual resources and what they had learned during lectures/laboratories, or from course materials or textbooks. A total of 86 responses were received (missing 15). As shown in Table 11, the most frequent response was "I'd clarify with tutors/teachers," which had the highest overall frequency (n = 44; 51.2%), as well as the highest frequency within each academic year: 5 students (38.5%) from the first year, 18 (54.5%) from the second year, and 21 (52.5%) from the third year. The next most frequent response was "I'd keep searching for other sources" (n = 26; 30.2%), followed at a distance by the remaining options.

Discussion

The observational field study conducted revealed several consistencies with the findings from the literature review. One particularly important finding from the questionnaire responses was that the overwhelming majority of students reported using video resources as a means to enhance their study of clinical procedures. Furthermore, the most frequently consulted online platform for visual materials was YouTube. In fact, as noted in the literature, YouTube is one of the most popular and widely used platforms by students for independent study. Our study

did not investigate the reasons why videos are so frequently used as a learning aid. However, YouTube, as highlighted in the review by June et al., is particularly useful for bridging the gap between theory and practice—an essential aspect in nursing education. It is also an unlimited resource: students can adjust the videos to their own pace and access them freely, at any time and from any location (23). Interestingly, among the sources consulted, there was also mention of websites from other universities. Literature suggests that opening a university channel on YouTube could offer significant potential. For example, Johnston et al.'s experimental study demonstrated that the launch of a "Biological Sciences" channel as a supplementary learning resource for nursing students was hugely successful, with over 90% of students reporting that these videos helped them in learning biological sciences (13). Such an approach could further assist in creating standardised information within the university, avoiding reliance on resources that might not always be considered coherent by faculty members. In our study, nursing students at the University of Parma were asked to indicate which clinical procedures they were most interested in exploring further using online resources. The responses resulted in a diverse and varied list of procedures. These findings reflect how students search the Web for common themes that are part of the course curriculum, such as venous blood sampling, arterial blood gas analysis, urinary catheterisation, and nasogastric tube insertion. Additionally, some responses referred to procedures not typically addressed in university laboratories, or those that students rarely encounter in clinical practice. This is consistent with the findings of Cardoso et al., who reported that video-based methods provide an opportunity to engage with clinical situations in which students lack direct experience (15). Another extensively explored area in the literature is the reliability of online resources, specifically videos. According to studies reviewed, not all visual resources available on the Web are suitable for use in educational contexts. For example, Dos Santos et al. reported that, within the Brazilian national context, of 23 YouTube videos selected on nursing-related topics, only 5 were deemed suitable as supplementary educational material (17). In contrast, the average reliability score assigned by participants in

our field study was 7.55/10, indicating that students consider these online resources to be fairly consistent with guidelines, scientific evidence, and other trusted sources. The literature repeatedly emphasises the lack of criteria or 'guidelines' for selecting or recommending videos for academic use. Duncan et al. suggest that such criteria could help students become more aware and independent in sourcing accurate, high-quality content from the Web (8). Indeed, faculty play a key role in guiding students towards evidence-based materials, as noted by Mahasneh et al. (6). The role of social media in stimulating discussions between students and lecturers has also been highlighted in several studies included in Reed et al.'s review (4). However, the majority of participants in our study reported sharing and discussing online resources with their peers rather than with lecturers, which revealed a statistically significant difference in the proportion of responses compared to the expected proportion. Interestingly, there were no significant differences observed based on the year of study. This finding contrasts with our own results, as slightly more than half of the students reported that, in the event of discrepancies between online content and what was presented in textbooks or by lecturers/tutors, they would discuss these issues with their educators. Only two individuals stated that they would rely entirely on the information found on the Web. Regarding the perceived usefulness and importance of visual resources in learning, our study showed an average score of 8.06/10 for usefulness and 8.36/10 for importance. These positive findings align with the majority of studies reviewed in the literature. It is therefore worth concluding with some further reflections on how second- and third-year students differ in their educational use of social media, particularly in relation to the development of professional identity and research competencies. Variations in how students engage with social media across academic years are well-documented. Earlier-year students often use these platforms for personal purposes, while more advanced students are increasingly inclined to use them for educational and professional goals. Alharbi et al. demonstrated a positive correlation between professional identity and the academic use of social media among nursing students, though they also noted the limited integration of social platforms within nursing

curricula, calling for clearer pedagogical guidance (24). Moreover, Zhang et al. identified problematic social media use and low mental health literacy as key risk factors for depression among nursing students, highlighting the importance of targeted educational interventions (25). In light of these findings, it is crucial that students in later stages of training develop more advanced skills in research methodology and database searching. This should be supported by structured curricular initiatives that encourage the professional and informed use of digital platforms, along with improved digital and mental health literacy.

Conclusion

This study examines the growing use of online resources by nursing students, with a focus on YouTube® as a popular platform for video content that supports their learning. Videos are valuable tools for mastering clinical procedures, allowing students to explore a wide range of techniques, from the most common to those rarely covered in academic curricula. These resources, which span various topics in the academic programme, help students deepen their understanding, even of techniques not yet encountered in laboratory settings. Moreover, videos offer the opportunity to learn about procedures that might not be addressed in university practical sessions but are essential for clinical placements and future professional practice. Audio-visual content is particularly effective because it caters to diverse learning styles, making skill acquisition more dynamic and accessible. However, for videos to be truly beneficial, they must adhere to rigorous ethical standards and provide reliable, verified information. It is crucial that the sources of these resources are clear, credible, and of proven quality. Looking ahead, it would be valuable to develop academic projects that create dedicated digital channels, such as YouTube®, to share educational content related to specific professional practices across various disciplines. Such initiatives could involve students, lecturers, and tutors in all stages of production, from research to content creation, video recording, editing, and management. These projects would foster collaborative,

hands-on learning, as well as maximise the use of available teaching resources like simulation laboratories. A digital platform like this could provide continuous updates, disseminating verified knowledge to a wider audience, both within and outside the academic environment. This model could bridge theory and practice, integrating academic staff with the digital world while ensuring the scientific accuracy of the content. Academic-origin content enhances the reliability of these resources, and there is growing recognition that universities must embrace Web 2.0 tools. This shift could benefit both the institutions and the nursing profession by offering new, innovative ways to deliver education. As outlined in the Code of Ethics for Nursing Professionals, nurses should use information technology and social media in a scientific and ethical manner to engage in constructive dialogue (Article 29) (26). In countries like the United States, YouTube® channels for nursing content are widespread, but in Italy, this phenomenon is still in its early stages. Despite its potential, social media, particularly YouTube®, must be used consciously and regulated to ensure safety and quality in nursing education. Clear guidelines and proper training for both faculty and students are essential to maintain high standards of learning. Several limitations were identified in this study. The sample consisted mostly of second- and third-year nursing students at the University of Parma, with limited representation from first-year students. Future research should aim to include more first-year students. Additionally, missing data from some responses reduced the sample size. Finally, exploring this issue from the perspective of lecturers could be valuable, especially regarding their willingness to adopt alternative teaching methods, such as integrating self-produced videos to complement traditional lecture-based instruction.

interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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References

1. Vanzetta M, Dal Molin A, Vellone E, Alvaro R, Arrigoni C. Social media and nurse education: an integrative review of the literature. Ann Ig. 2016;28(3):187–201. doi:10.7416/ai.2016.2097.

2. Ross JG, Myers SM. The current use of social media in undergraduate nursing education: a review of the literature. Comput Inform Nurs. 2017;35(7):338–44. doi:10.1097/CIN.0000000000000342.

3. Duke VJA, Anstey A, Carter S, Gosse N, Hutchens KM, Marsh JA. Social media in nurse education: utilization and e-professionalism. Nurse Educ Today. 2017;57:8–13. doi:10.1016/j.nedt.2017.06.009.

4. Reed L, Lee M. Social media utilization in undergraduate nursing education: an integrative literature review. Online J Nurs Inform. 2022;26(2):6–15. doi:10.5277/ojni.2022.02.

5. Zhu X, Yang C, Ding L, et al. Social media usage of Chinese nursing students: attitudes, motivations, mental health problems, and self-disclosure. PLoS One. 2022;17(12):e0277674. doi:10.1371/journal.pone.0277674.

6. Mahasneh D, Shoqirat N, Singh C, Hawks M. From the classroom to Dr. YouTube: nursing students' experiences of learning and teaching styles in Jordan. Teach Learn Nurs. 2021;16(1):5–9. doi:10.1016/j.teln.2020.09.008.

7. Lopez V, Cleary M. Using social media in nursing education: an emerging teaching tool. Issues Ment Health Nurs. 2018;39(7):616–9. doi:10.1080/01612840.2018.1494990.

8. Duncan I, Yarwood-Ross L, Haigh C. YouTube as a source of clinical skills education. Nurse Educ Today. 2013;33(12):1576–80. doi:10.1016/j.nedt.2012.12.013.

9. Pilieci SN, Salim SY, Heffernan DS, Itani KMF, Khadaroo RG. A randomized controlled trial of video education versus skill demonstration: which is more effective in teaching sterile surgical technique? Surg Infect (Larchmt). 2018;19(3):303–12. doi:10.1089/sur.2017.231.

10. Lahti M, Haapaniemi-Kahala H, Salminen L. Use of social media by nurse educator students: an exploratory survey. Open Nurs J. 2017;11:26–33. doi:10.2174/1874434601711010026.

11. Forbes H, Oprescu FI, Downer T, et al. Use of videos to support teaching and learning of clinical skills in nursing education: a review. Nurse Educ Today. 2016;42:53–6. doi:10.1016/j.nedt.2016.04.010.

12. Clifton A, Mann C. Can YouTube enhance student nurse learning? Nurse Educ Today. 2011;31(4):311–3. doi:10.1016/j.nedt.2010.10.004.

13. Johnston AN, Barton MJ, Williams-Pritchard GA, Todorovic M. Youtube for millennial nursing students; using internet technology to support student engagement with bioscience. Nurse Educ Pract. 2018;31:151–5. doi:10.1016/j.nepr.2018.06.002.

14. Burton R. Nursing students' perceptions of using YouTube to teach psychomotor skills: a comparative pilot study. SAGE Open Nurs. 2022;8:23779608221117385. doi:10.1177/23779608221117385.

15. Cardoso AF, Moreli L, Braga FTMM, Vasques CI, Santos CB, Carvalho EC. Effect of a video on developing skills in undergraduate nursing students for the management of totally implantable central venous access ports. Nurse Educ Today. 2012;32(6):709–13. doi:10.1016/j.nedt.2011.09.012.

16. Margallo MCM, Mariano CNP, Martinez KNFL, et al. Characterizing effective teaching in nursing pharmacology YouTube videos: a mixed methods study. Nurse Educ Today. 2023;120:105624. doi:10.1016/j.nedt.2022.105624.

17. dos Santos Bezerril M, Gonçalves da Costa ME, et al. Teaching the nursing process according to YouTube videos: a descriptive-exploratory study. Online Braz J Nurs. 2021;20(1):e20210325. doi:10.17665/1676-4285.20210325.

18. Sharoff L. Integrating YouTube into the nursing curriculum. Online J Issues Nurs. 2011;16(3):6. doi:10.3912/OJIN.Vol16No03PPT03.

19. Giroux CM, Moreau KA. Nursing students' use of social media in their learning: a case study of a Canadian school of nursing. BMC Nurs. 2022;21(1):195. doi:10.1186/s12912-022-00977-0.

20. Li TY, Gao X, Wong K, Tse CSK, Chan YY. Learning clinical procedures through internet digital objects: experience of undergraduate students across clinical faculties. JMIR Med Educ. 2015;1(1):e1. doi:10.2196/mededu.3866.

21. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine (Phila Pa 1976). 2000;25(24):3186–91. doi:10.1097/00007632-200012150-00014.

22. Rosner BA. Fundamentals of biostatistics (Vol.6). Belmont, CA: Thomson-Brooks/Cole

23. June S, Yaacob A, Kheng YK. Assessing the use of YouTube videos and interactive activities as a critical thinking stimulator for tertiary students: an action research. Int Educ Stud. 2014;7(8):56–67. doi:10.5539/ies.v7n8p192.

24. Alharbi M, Kuhn L, Morphet J. The relationship between social media usage by undergraduate nursing students and development of their professional identity: a correlational study. Nurse Educ Today. 2022;112:105337. doi:10.1016/j.nedt.2022.105337.

25. Jiayuan Z, Lina M, Yang L. Problematic media use, mental health literacy, and their interaction in depression among nursing students. BMC Nurs. 2025;24(1):199. doi:10.1186 /s12912-025-02827-1.
26. Consiglio Nazionale FNOPI. Uso corretto dei social media nella professione infermieristica [Internet]. FNOPI; 2018 [cited 2023 Mar 18]. Available from: https://www.fnopi.it/ en/aree-tematiche/social-pronunciamento-consiglio-nazi-onale-13-ottobre-2018/

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