



Implementation of hair care learning using keratin

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ABSTRACT

The excessive application of chemical agents in bleaching, hair colouring, and straightening can cause damage to the hair shaft, resulting in dryness, coarseness, fluffiness, and frizz. Frizzy hair signifies considerable damage that cannot be sufficiently remedied with standard hair care; hence, it requires additional keratin therapy treatment. Problems arise when university hair care curricula just offer hair mask techniques, whereas the salon industry uses keratin treatments to manage frizzy hair. Although employing different substances, hair mask treatments, and keratin treatments exhibit similar phases and techniques to sophisticated hair treatments. This study examines the implementation of hair mask instruction in universities using keratin treatment techniques in the salon industry. This study aims to evaluate the suitability of including hair care education (hair mask) using the keratin treatment method for frizzy hair in the salon industry. The research utilises a descriptive methodology with a quantitative approach. The data collection approach utilised a questionnaire designed in alignment with the competency standards of hair mask hair care courses. The research participants consisted of 15 Beauty Education students from Semarang State University, representing the 2022 and 2023 cohorts, who were employed in salons. A quantitative descriptive analysis employing percentages was performed for data analysis. The analysis of hair damage indicators yielded a score of 85%, deemed very suitable; the preparation of hair care tools and materials achieved 88%, also classified as very suitable; hairdressing techniques received a score of 79%, categorised as appropriate; mask application and infiltration techniques attained 82%, classified as appropriate; and drying, styling, and results techniques were rated at 75%, categorised as appropriate.

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INTRODUCTION

Hair care education is one of the subjects pursued by college students. Learning Hair Care examines several methods for maintaining hair health. The instruction encompasses a cream bath,

hair mask, hair spa, and style utilising diverse techniques. The Department of Aesthetic Education provides students with competencies ranging from theoretical ideas to practical applications in hair styling and care procedures. This education aims to prepare students to become proficient hairdressers specialising in beauty, particularly in hair care and style. Student competence is evaluated through practical and theoretical examinations. This department has established expertise in hair mask treatment as a hair care procedure.

Hair is a protein filament originating from follicles within the dermal layer of the skin, comprised primarily of keratin. Hair emerges from the skin via hair follicles and extends throughout nearly the entire surface of the body's skin, including the limbs, face, and scalp (Nurhayati et al., 2025). The typical quantity of follicles in the human scalp is 100,000 (Kristiningrum, 2018). Hair serves multiple roles. Hair serves to shield the skull from external influences (Kaushik et al., 2020) and affects appearance. The appearance of hair significantly influences an individual's physical appearance and general self-perception. Human hair undergoes a life cycle with three stages: anagen (growing), catagen (transitional), and telogen (resting). Typically, hair undergoes contraction following a phase, Anastasia, and the hair shaft will shed during the telogen phase. The follicle initiates the anagen phase, during which follicles return to their previous size and generate new hairs of standard thickness (Hwang et al., 2022). Hair consists of two structures: the root and the shaft. The hair shaft is the visible portion of the hair. Each hair shaft comprises two or three layers: the cuticle, cortex, and medulla (Gahal et al., 2025). The hair shaft is situated on the portion of the hair that extends beyond the scalp. The hair follicles reside within the dermis and penetrate the deeper strata of the skin. Hair functions as a protective covering for the head. Straight, glossy hair can influence an individual's appearance and mood (Will et al., 2025). Sleek, lustrous hair signifies health, whereas untreated hair indicates poor condition.

Unhealthy hair manifests as dry, dull, split ends, or dandruff, which results from the shedding of huge aggregates of epidermal cells from the scalp. Unhealthy hair results from multiple sources, including the use of hair ties and excessive heat from hairdryers. The application of cream hair dye and cream bleaching with high developers may induce harm to frizzy hair. (Malkani et al., 2020). Furthermore, the use of unsuitable chemicals for hair straightening, along with excessive processing of medication absorption, results in frizzy hair. The use of potent chemicals may cause the irreversible opening of the cuticle layer, resulting in the loss of the hair's inherent protective role. (Hsb et al., 2025).

Frizzy hair is a condition characterised by hair strands that are misaligned with adjacent strands, leading to an irregular and independent texture, generally arising from elevated cuticle structure, humidity, and molecular interactions inside the hair shaft. (Song et al., 2024). These issues can be resolved with the application of suitable hair care practices. Frizzy hair damage is addressed with several treatment options tailored to the severity of the damage, from basic hair masks to keratin treatments for more difficult situations. The function of hair care is to prevent or treat hair damage. (Kaushik et al., 2020). Hair care is categorised into two distinct types: dry hair care and moist hair treatment. One of the treatments for wet hair is HairMask.

A hair mask is a treatment applied straight to the hair shaft, avoiding contact with the scalp. Hair care masks can be used at home or in a salon. Hair care treatments, as noted by Safitri et al. (2023), typically involve the use of creams in salon hair masks, which are generally practical. Hair masks enhance the integrity of the hair shaft, deliver hydration, and restore depleted nutrients.

Hair Care Hair Mask. It encompasses specialised techniques that are examined theoretically in hair care education courses. Protocols Hair Mask. The appropriate procedure commences with cleansing your hair using shampoo. Shampoo is engineered as a cleansing agent intended to eliminate dirt, oils, environmental contaminants, and microorganisms from the scalp and hair (Bhowmick et al., 2025). Application occurs twice, followed by the use of the conditioner.

Hair conditioner is a hair care product designed to enhance softness, lustre, and radiance, diminish frizz, and facilitate styling and detangling (Fernandes et al., 2023). Conditioner Application Executed relaxation massage utilising rotational movements, effleurage, and friction techniques, together with styling and combing (Sulistiyorini & Susilowati, 2021). Movement Therapy Massage. It can also enhance the thickness of hair (Koyama et al., 2016). Hair is washed and dried with a towel. Apply hair mask crème to each segment of hair. Hair Mask Products. It functions by enveloping the hair shaft while enhancing suppleness and facilitating combing (Isnard et al., 2019). The subsequent procedure involves infiltration; the hair is enveloped in a heated cloth for 15 to 20 minutes. Rinse with cold water, omitting shampoo, and allow to air dry to retain moisture. The HairMask process necessitates adherence to the Operational Standards (SOP) to achieve healthy, beautiful, aromatic, and lustrous hair. These operational criteria align with the appropriate learning materials, ensuring that the practice conforms to collegiate education. The study of hair care is anticipated to equip students with abilities that can be effectively utilised in the salon business.

Despite the organized adoption of hair mask teaching in higher education, a competence gap exists between academic training and salon business practices. University hair mask training emphasizes restorative hydration and fundamental hair care SOPs. But salons are increasingly using keratin therapy to fix severe frizzy and chemically damaged hair. Keratin therapy involves accurate heat application, sectional infusion, and hair shaft protein reformation knowledge. Traditional hair mask training doesn't cover these advanced skills. Thus, graduates may be proficient in basic hair treatments but unprepared for industry-standard keratin treatments. The gap between vocational learning results and professional salon needs requires curricular integration that links basic hair mask procedures to sophisticated keratin-based treatments.

Frizzy hair treatment in the salon business is accomplished through the application of keratin treatment. Keratin therapy. The HairMask therapy was continued. Keratin cream therapy. It comprises a therapy utilising hydrolysate protein or liquid keratin to repair deficiencies in the hair structure, enhancing overall integrity. Keratin Therapy is designed to address severe damage to hair. Hair is damaged due to excessive application of chemical treatments from colouring and straightening. Utilisation of keratin. The treatment differs slightly from the HairMask treatment. Keratin cream infusion Treatment is administered while the hair is damp at an elevated temperature, consistent with research findings. (Fan et al., 2025) Hydrolysed keratin reacts to UV radiation to reduce hair damage and increase weak intermolecular tensions, strengthening hair. Despite treating hair shaft damage, keratin therapy improves hair structure significantly. Only specialists may do Keratin Technical Application Treatment. Overprocessing causes frizzy, voluminous hair if the medicine is not used as directed. (Mbussuh Nzenge et al., 2023).

Numerous prior studies have examined hair care education and its implementation. Investigations undertaken by (Ningrum et al., 2024) Indicates that the acquisition of fundamental hair care concepts among students at SMKN 8 Surabaya is deemed capable of influencing their learning results in Creambath. The study's findings indicated that fundamental knowledge regarding hair structure, products, their application, and approaches with appropriate processes influences students' comprehension levels. Students have a deeper understanding of the theoretical framework before performing hair care treatments, specifically Creambath. This comprehension enhances students' psychomotor skills, hence improving the outcomes of practical applications, such as Creambath.

A separate investigation was undertaken by Fan Jiayi et al. (2025). The study's results demonstrated that keratin hydrolysate effectively prevents and mitigates photoaging in hair due to ultraviolet (UV) exposure. The utilisation of hydrolysed keratin can restore structural damage to the hair shaft, enhance mechanical strength, and preserve moisture and elasticity following UV exposure. Hydrolysed keratin functions by infiltrating the cuticle and hair cortex, thus creating a protective barrier that diminishes the deterioration of hair proteins caused by free radicals. The

amino acid composition of hydrolysed keratin contributes to the stabilisation of hair protein structure and mitigates oxidative damage, a primary factor in hair ageing caused by light exposure.

This research is innovative in its examination of the application of hair mask hair care education using keratin treatment within the salon business. This study seeks to evaluate the appropriateness of employing keratin treatment techniques as an advanced hair mask therapy for addressing frizzy hair, in contrast to prior research that concentrated on learning outcomes or the advantages of keratin. This study examines hair mask treatments as the foundation for keratin hair treatments in salons.

Keratin-based hair care instruction. Essential indicators of frizzy hair show theoretical comprehension and practical skill. Analysis of hair damage is essential to examine the hair's physical state, identify damage sources, evaluate elasticity, porosity, and appropriateness, allowing students to decide the required therapies before intervention (Wu et al., 2024). The preparedness of hair care therapists and clients shows students' ability in preparing instruments and supplies, cleaning them before use, organizing them, and following hair care learning procedures. Resource availability and good work practises greatly impact therapy effectiveness (Martins et al., 2024).

Dressing before hair treatment is the next indicator. Double dressing helps remove residues and prepares hair for further treatments. Applying Conditioner After the lecture, a light effleurage, rotation, and friction massage will be given. Rinsing your hair thoroughly is important because good washing affects hair health from root to shaft. (Lee et al., 2025). In this study, the proper application and absorption of keratin masks is crucial because uniform application allows the active ingredients to form a protective layer and engage with the hair structure, improving frizzy hair's appearance and texture (Centini et al., 2025). Keratin infiltration is utilized for sectioning. Treatment is stamped hotter than HairMask, which is covered in a towel. Keratin infiltration treatment efficacy depends on timing. The last steps are drying, styling, and outcomes. Heat stabilises keratin proteins in the hair shaft, strengthening and shining it. (Fan et al., 2025). The outcomes of keratin treatment indicate that hair gets smoother and exhibits less porosity, resulting in enhanced strength compared to its condition before the treatment.

Thus, this research asks: Can higher education hair mask learning models use keratin treatment procedures to overcome the competence gap between academic teaching and salon industry practice? This study proposes an industry-relevant instructional methodology to prepare students for professional hair treatment by examining procedural alignment and implementation indicators.

RESEARCH METHODOLOGY

This study is descriptive. A descriptive study seeks to objectively delineate the conditions or phenomena present in the subject of investigation. This research employs a quantitative methodology. The quantitative technique is a scientific approach that employs numerical data and statistical analysis.

This study was conducted in salons utilised by the Beauty Education students of Semarang State University for the years 2022 and 2023, specifically SYR Beauty Salon, Is Dievo Hair Colour Specialist, Lydia Salon, MissDiana Salon, Viva Beauty Center, and Sekar Ayu Salon. The objective is to assess the compatibility of hair mask, hair care education, and keratin treatment methodologies within the salon sector.

This study focuses on Beauty Education students from the 2022 and 2023 cohorts employed in salons with a maximum of 15 personnel, specifically detailing 3 at SYR Beauty Salon, 5 at Lydia Beauty Salon, 3 at Is Dievo Hair Colour Specialist, 2 at Viva Beauty Center, 1 at Sekar Ayu Salon, and 1 at Miss Diana Salon.

The sample constitutes a segment of the chosen population and embodies specific traits of the overall subject. (Sugiyono, 2013). This study used a comprehensive sampling technique, utilising the entire population as research samples, resulting in a sample size of 15 respondents. The sample selection is determined by specific criteria aligned with the research objectives. The sample comprises students employed in salons offering keratin treatment services and receiving education on hair care and hair masks during lectures.

The research instrument employed was a survey questionnaire. Survey research is a methodological approach employed to gather data about both past and contemporary occurrences. (Sugiyono, 2013). The instrument's preparation is directed by the hair care educational program. This survey form includes multiple enquiries on competency criteria in HairMask hair care training. The evaluated aspects included the appropriateness of the conveying methodology, the utilisation of tools and materials, smearing, diffusion, drying methods, styling, and the outcome.

The competence indicators used to assess student keratin treatment performance were developed from the HairMask educational framework to suit industry norms. Student performance was assessed across five core competency domains: (1) hair damage analysis, including the ability to assess hair elasticity, porosity, and structural condition before treatment; (2) preparation, including the proper selection and hygienic preparation of tools and keratin materials; (3) procedural, including cleansing, sectioning, and preliminary conditioning; and (4) application. These psychomotor and procedural characteristics meet vocational beauty education and salon practice criteria. To evaluate if student performance met instructional criteria, each competence category was scored using a 5-point Likert scale.

Data-collecting methodologies for surveys utilising questionnaires. Observations were conducted to assess the efficacy of hair care with the keratin approach. In salons, the evaluation of the assessment is categorised as very appropriate, moderately appropriate, less appropriate, or inconsistent with the hair care principles presented in lectures. The assessment employs a Likert scale ranging from 1 to 5, which, as per (Sugiyono, 2013) It is employed to assess respondents' attitudes, views, and perceptions of a research subject. The research was examined utilising quantitative descriptive approaches with a percentage analysis. Quantitative descriptive analysis is a data analysis method employed to elucidate or characterise the data gathered from respondents. (Sugiyono, 2013). The collected respondent data were subsequently gathered and analysed to address the problem formulation. The tabulated data were further analysed descriptively by aggregating the response values of each category for each responder about each facet of the indicator. Descriptive analysis is employed to delineate the distribution of grades, means, standard deviations, maximum grades, minimum grades, and percentages. The mean is calculated using the formula $X = (\sum Xi)/N$, whereas the standard deviation is derived from $SD = \sqrt{((\sum (Xi-X)^2)/N)}$, where X represents the mean, Xi denotes the individual respondent values, and N signifies the total number of respondents. The maximum and minimum scores are derived from the highest and lowest value data, while the average percentage is calculated from:

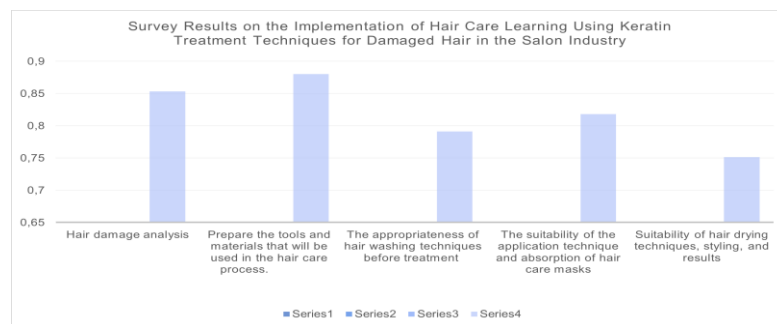
$$\text{Percentage Score} = \frac{\text{Average Score}}{\text{Maximum Score}} \times 100\%$$

RESULTS AND DISCUSSIONS

Observations conducted in six salons utilised by the 2023 and 2024 Semarang State University Beauty Education students—SYR Beauty Salon, Is Dievo Hair Colour Specialist, Lydia Salon, MissDiana Salon, Viva Beauty Center, and Sekar Ayu Salon—yielded the following results:

Table 1. Survey results of the implementation of hair care learning using keratin treatment techniques for frizzy hair in the salon industry

Yes	Indicator	Average Score	Standard Deviation	Introduce yourself	Compatibility Level
1	Hair damage analysis	4,27	0,43	85%	Highly Appropriate
2	Preparing hair care tools and materials	4,40	0,19	88%	Highly Appropriate
3	Suitability of hair styling techniques	3,96	0,68	79%	Compliant
4	Suitability of mask application and diffusion techniques	4,09	0,49	82%	Compliant
5	Suitability of hair drying techniques, <i>styling</i> , and results	3,76	0,82	75%	Compliant

**Figure 1.** Average percentage result of the score per indicator**Table 2.** Interpretation of research results

Mean Range	Vulnerable Present (%)	Interpretation Categories
4,21 - 5,00	84,2% -100%	Highly Appropriate
3,41 - 4,20	68,2% - 84,0%	Compliant
2,61 - 3,40	52,2% - 68%	Quite Appropriate
1,81 - 2,60	36,2% - 52%	Less Suitable
1,00 - 1,80	20% - 36%	Inappropriate

Source (Sugiyono, 2023)

The Percentage Chart indicates an average score over 68.2%, demonstrating that the execution of hair care education on keratin treatment practices in salons is categorised as appropriate. The data analysis results indicate that, overall, the application of keratin treatment techniques aligns with the hair care education provided in lectures. The respondents' scores predominantly fall within the medium to high range, indicating that the fundamental steps of treatment have been executed in alignment with academic norms. Data were collected via observation employing the Likert scale and analysed quantitatively in a descriptive manner by examining the mean score, maximum score, minimum score, and standard deviation for each indicator, as utilised in beauty vocational research that implemented a Likert scale questionnaire to elucidate respondents' perceptions of learning implementation and practical skills (Usodoningtyas *et al.*, 2025). The findings indicated that the hair damage analysis indicator achieved a percentage of 85%, classified as very suitable; the preparation of hair care tools and materials received 88%, also categorised as very suitable; hair dressing techniques scored 79%, categorised as appropriate; mask application and infiltration techniques attained 82%, categorised as appropriate; and drying, styling, and results techniques registered 75%, categorised as appropriate.

Hair Damage Analysis

The hair damage analysis indicator yields a mean value within a highly suitable category. The results indicate that students successfully analysed the client's hair condition before keratin treatment, in alignment with the hair mask curriculum. This included identifying the causes of hair

damage, assessing hair elasticity and strength, and evaluating hair porosity levels to inform treatment decisions. The capacity of students to modify the outcomes of the hair damage assessment based on the implemented therapy measures indicates that the initial analysis phase has been executed effectively. The investigation of hair damage is a crucial initial phase, as it establishes the foundation for identifying the appropriate treatment and technique, particularly through the examination of hair attributes such as elasticity, fibre strength, and structural condition (Gasparin et al., 2025). Furthermore, comprehending the structure and degree of hair damage is essential to guarantee the efficacy of treatment interventions, since the hair's reaction to treatment is significantly affected by the condition of the cuticle and the resilience of the hair fibres. The elevated conformity in this indicator signifies that instruction on hair care during lectures has equipped students with a robust comprehension of the study of hair structure and the extent of damage before keratin application. Treatment is conducted as per Junior et al. (2024).

Hair Care Tools and Materials Preparation

The study results indicated that the indicators for instrument and material preparation achieved the highest average score, categorised as highly appropriate, reflecting the respondents' consistency in executing work preparation procedures. The elevated responses to questionnaire items, including the preparation of hair care tools and materials before keratin treatment as per HairMask guidelines, the adaptation of treatment materials to the client's hair condition, and the assurance of cleanliness and safety of tools and materials before use, indicate that students have successfully internalised and implemented systematic, hygienic, and professional work practices as instructed in hair care education. These findings align with research indicating that salon workers' understanding and practices concerning occupational safety and health influence their management of contamination hazards associated with work items and equipment. (Scott, 2025), alongside other research that underscores the significance of public awareness regarding hygiene in beauty services as a component of safety initiatives and disease transmission prevention (Thapa et al., 2024). Consequently, it can be inferred that students not only comprehend the concept but also consistently execute the procedure for preparing tools and materials hygienically and professionally in accordance with learning standards, indicating a high level of competency readiness in keratin treatment practices within the salon environment.

Hair Styling Techniques

The metric for the appropriateness of hairdressing procedures achieved an average rating within the acceptable range. The comparatively larger standard deviation results suggest inconsistencies in the use of communication approaches within the hair care educational setting. This variation is likely affected by disparities in students' work habits regarding the use of screening procedures and the determination of the length for each stage, despite the significant role that correct screening plays in enhancing the efficacy of keratin treatment. According to the questionnaire, respondents typically brushed the client's hair twice before applying keratin. Before keratin treatment, apply conditioner to the hair shaft as per hair care protocols. This application enhances the softness of the hair cuticle and incorporates massage techniques such as effleurage, rotation, and friction during the process (Stuart et al., 2023). Conditioner should precede keratin treatment. Delivery methodologies and application of conditioner. This massage approach is demonstrated to enhance hair health and its preparedness for subsequent treatments, hence facilitating keratin outcomes (Lee et al., 2025).

Hair Care Mask Application and Infusion Techniques

The metrics for mask application and absorption achieved an average score within the acceptable range. This indicates that students have successfully implemented keratin treatment in accordance with fundamental hair care methods (Pascoal et al., 2025). Nonetheless, discrepancies in the timing of product penetration persist, which may influence the ultimate therapy outcomes if not executed appropriately. According to the questionnaire results, respondents predominantly

implemented the application of keratin treatment. Furthermore, according to the HairMask procedure section, the application of the keratin infiltration technique Treatment, identical to the HairMask infiltration, necessitates a prolonged duration of approximately 30 minutes, in contrast to the 15 minutes allocated for the HairMask in hair care education. The extended penetration is crucial as it directly influences the capacity of the active ingredient to permeate and cling to the hair fibres, hence enhancing the efficacy of hydration and hair protection post-treatment. Research indicates that the uniform application and absorption of the product, along with sufficient absorption time, enhance the distribution of ingredients throughout the hair fibres, resulting in a healthier, softer, and more enduring finish. Furthermore, a separate study revealed that varying durations of infiltration can influence the keratin structure and hydration levels of hair, hence affecting the quality of hair post-treatment (Yun et al., 2025).

Hair Drying Techniques, Styling, and Results

Indicators of drying procedures, styling, and the resultant outcome achieved a uniform value within the designated category. This indicates that the concluding phase of treatment is the most diverse aspect of its implementation. (Carvalho et al., 2023). According to the questionnaire data, students recognise that keratin treatment and hair masks include similar treatment chemicals that enhance hair structure, and that resistance to keratin yields outcomes comparable to those of the treatment, as taught in hair care lectures. This variety can be attributed to the distinctions in each procedure, each therapy in keratin treatment, and engineering. Styling occurs during the infiltration of keratin cream using a heat-conductive device, such as an electric vice, as an extended infiltration duration is necessary to stabilise the keratin structure, which can create a protective film on the hair shaft and enhance its tensile strength against environmental stressors like heat and UV radiation (Fan et al., 2025). Styling occurs post-drying, subsequent to the completion of the HairMask treatment. Implementation of methodologies for Keratin Treatment for Hair Styling. The appropriate treatment directly influences the outcome, as it can effectively enhance the condition of damaged hair, rendering tangled strands healthy, soft, and lustrous. This is attributed to the inclusion of keratin, which fortifies the hair structure, increasing its resilience to mechanical damage and heat (Martins et al., 2024).

Factors Influencing Student Success in Applying Keratin Techniques

The data show that contextual practice and basic competence mastery affect student keratin technique success. Students who excelled in hair damage assessments and tool and material preparation had more consistent keratin treatment results. This shows that mastering basic hair mask abilities is necessary to learn sophisticated keratin-based procedures.

Technical accuracy and experience may explain procedural delivery, infiltration time, and heat-controlled style variability. Keratin therapy demands precise sectional infusion, longer penetration, and greater temperature management than hair masks. Inconsistent heat management or timing may impact hair shaft keratin protein stability, affecting smoothness, durability, and treatment efficacy. Performance also varies according to salon setting, professional equipment, and practitioner supervision.

Student confidence and industry-standard tool knowledge impact execution quality. Heat sealing and structural strengthening need more psychomotor coordination and real-time decision-making during keratin treatment. These data indicate that cognitive awareness of hair structure and frequent supervised practice in genuine salon environments greatly impact student effectiveness with keratin-based treatments.

Keratin treatment is more successful in treating severe frizzy hair due to its protein-restructuring process and heat-assisted penetration, which strengthen the cortex and stabilize the cuticle layer. Instead, hair mask learning stresses hydration and surface conditioning. Hair mask teaching teaches preparation, cleanliness, and product application, but keratin-based learning demands technical accuracy and structural analysis. Both techniques have procedural similarities,

but keratin-focused training improves structural healing capacity and aligns with salon business objectives.

CONCLUSION

Findings suggest salons should provide hair care education (hair mask) via keratin treatment processes. Hair damage analysis and tool and material preparation indicators are high, but procedural delivery, product application, infiltration time, drying, and style are adequate. These findings demonstrate that hair mask teaching offers a robust basic competence framework for students to transfer into keratin-based salon procedures.

However, the research emphasizes vocational hair treatment education innovation. Future studies should create and evaluate an integrated curriculum model that combines advanced keratin treatment abilities into higher education learning outcomes. Experimental or quasi-experimental research comparing student performance before and after curricular integration would show educational efficacy better. Advanced methods, such as simulation-based training and digital hair-damage assessments, may increase technical accuracy and learning outcomes. A longitudinal study of graduate preparation and employment performance would increase vocational beauty education's conformity with industry requirements.

Results support competency-oriented curriculum development from an industrial viewpoint. Instead of an informal extension of hair mask learning, keratin treatment should be an advanced lesson. According to salon industry standards, the curriculum should include protein rearrangement, regulated heat application, infiltration time, and damage severity evaluation. Industry partnerships, guest practitioners, and competency certification schemes aligned with national occupational standards should strengthen institutional collaboration with professional salons and expand practical training hours to include supervised keratin simulations. Adding these industry-relevant skills will improve graduation preparation and connect academic and salon practice.

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