Cosmetics Use Among Teachers is Irrelevant When Considering Student Retention

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Abstract

Research evidence shows cosmetics positively impact female teacher confidence (Stuart & Donaghue, 2011). Female teachers wearing cosmetics indicate they feel more productive, knowledgeable, and confident than female teachers not wearing cosmetics (Dellinger & Williams, 1997). Sadler (2013) showed confidence also increases teaching effectiveness. The current study aimed to assess the impact of teacher confidence produced by cosmetics on student retention. This was experimentally assessed with 60 participants (39 females, 21 males) randomly assigned to view an 8 min, pre-recorded, lesson on facial anatomy led by a teacher in no cosmetics or full cosmetics. Upon lesson conclusion, participants completed a teacher confidence assessment (5-point Likert scale) and 10-item multiple choice quiz on lesson content. Data were sorted by condition, and the Mann-Whitney U (Ryan & Joiner, 2001) was used to test for differences in confidence ratings (p = .23) and content quiz scores (p = .58). Results show no significant difference between the cosmetics and no cosmetics conditions. A Pearson correlation coefficient was calculated for both the cosmetics (r = -.17) and no cosmetics condition (r = .11). No significant correlations were found in either condition. Although previous research (Stuart & Donaghue, 2011) may suggest teachers who do not wear cosmetics should wear cosmetics to increase their confidence, the current study provides evidence there is no need for adjustment to cosmetics use.

Introduction

Whether high or low, confidence is a trait all female teachers possess. Research shows wearing cosmetics boosts female confidence (Dellinger & Williams, 1997). It has also been shown teachers with higher confidence levels teach their classes in a more interactive, student-centered way (Sadler, 2013). If she so chooses, a teacher can boost her confidence by wearing cosmetics and, therefore, potentially teach her class in a way that is more conducive to student retention (Dellinger & Williams, 1997; Sadler, 2013; Stuart & Donaghue, 2011). That said, the added confidence that comes from cosmetics is only internal. Cosmetics help females feel more confident (Dellinger & Williams, 1997), but do they appear more confident to those observing them? The research question for the current study was the following: Do cosmetics make a female teacher appear more confident to her students? If she does appear more confident, will her students retain more information due to that perceived confidence?

The practice of wearing cosmetics has been a part of female life for millennia. The word cosmetics comes from the Greek word kosmos which means "order, referring in this case to the well-ordered face or appearance" (Goering, 2005, p. 434). In reference
to modern day cosmetics, the word kosmos implies order to an otherwise chaotic face through the use of cosmetics. The practice of applying cosmetics dates back to early Neanderthal humans. The Neanderthals used cosmetics to camouflage themselves while hunting or to inspire fear in their enemies (Goering, 2005). In ancient Egypt, cosmetics were a natural part of everyday health and hygiene (Chaudhri & Jain, 2009). Red ochre was used to stain the lips and cheeks, and dark cosmetics were used as a way of enhancing the eye (Goering, 2005). In Elizabethan England, women applied white lead powder as a way to make the face appear more pale (Chaudhri & Jain, 2009; Goering, 2005) as paleness was a sign of aristocracy. These women also added lip, cheek, and eye color (Goering, 2005). Much like the Neanderthals, Native Americans used cosmetics to inspire fear in their enemies before and during battle. Cosmetics were also used in tribal ceremonies. Cosmetics gained popularity in modern day America during the early 20th century when ballet and theater stars were observed in heavy cosmetics. Because celebrities were typically idolized, women took to wearing greater amounts of cosmetics to imitate their idols. History showed female cosmetics use to be influenced by celebrities and the media but also showed that self-confidence played a role in the choice to use cosmetics (Stuart & Donaghue, 2011).

A review of popular literature (Study, 2013; Valenti, 2013) showed the frequency of cosmetics use for three different female age groups in the United States was steadily decreasing. It was shown that 24 percent of 21 year olds used between 8 and 12 beauty products in their morning rituals (Valenti, 2013). By the time those 21 year olds turned 25, the number of beauty products they used in their morning rituals had decreased to between 0 and 3. Although, it seems female cosmetics use is declining, 44 percent of women polled by the Renfrew Foundation admitted to feeling a lack of confidence when not wearing cosmetics (Half of Women, 2012).

Females choose to wear cosmetics for a variety of reasons. Feeling confident is important to women (Dellinger & Williams, 1997; Osborn, 1996; Stuart & Donaghue, 2011). Because of this, the added confidence boost that comes from cosmetics has been constructed by women as a valid and logical reason for using cosmetics (Stuart & Donaghue, 2011). In fact, these researchers found, through the use of focus groups with young women, that appearing confident was the number one reason women identified for wearing cosmetics. Women were asked to discuss ideas surrounding women's worth and whether or not that worth was directly related to their beauty practices. Participants reported using cosmetics because of the associated confidence increase.

Similarly, Miller and Cox (1982) found makeup use was inversely related to public self-consciousness, which meant that women who wore more cosmetics felt less self-conscious. In relation to the findings of Miller and Cox (1982), Brdar, Tkalci, and Bezinovic (1996), through self-report surveys, found women who had lower self-esteem were more likely to use cosmetics on a regular basis. The survey topics were (a) cosmetics use, (b) fear of negative evaluation, (c) self-esteem, (d) self-consciousness, (e) perceived incompetence, and (f) sex roles. Survey results showed cosmetic use was highly correlated with sex roles, self-esteem, and fear of being negatively evaluated.

Via focus groups, Dellinger and Williams (1997) found women who wore cosmetics felt more productive, knowledgeable, and confident. This was especially true when women
were at work. Respondents also noted feeling as though they would experience negative feedback from co-workers if they went to work without cosmetics because respondents felt women who did not wear cosmetics appeared unhealthy and unsuccessful. In regard to their working environment, women felt they needed to use cosmetics to gain credibility and feel confident. This can be generalized to the female teaching population since females indicated they typically feel more confident with cosmetics. If female teachers feel they will appear more confident to their students because they are wearing cosmetics, they may continue to wear cosmetics. But confidence is not necessarily about how the teacher feels, it is about how the teacher appears to her class.

Confidence plays an important role in teaching. Jerez-Fernandez, Angulo, and Oppenheimer (2014) experimentally assessed perceived speaker confidence and found that observers rated the confidence of others on factors such as speech rate, posture, and eye gaze. Participants were 187 undergraduates who were given tests on river length and mountain height. Post-test, undergraduates were asked to rate the confidence of the speaker. Speakers who provided more precise answers were rated as more confident than others.

As discussed earlier, female teachers high in confidence may teach their classes differently (i.e., more interactively and student-centered) than female teachers low in self-confidence (Sadler, 2013). Through focus groups, Sadler (2013) found that when female teachers were more confident, they taught more effective classes. As it has been shown, cosmetics boost female confidence (Dellinger & Williams, 1997; Stuart & Donaghue, 2011), and female teachers higher in confidence taught more effective classes (Sadler, 2013). It can be concluded that a female teacher who wears cosmetics may be more confident and, therefore, may teach more effective classes given cosmetics use (Dellinger & Williams, 1997; Sadler, 2013; Stuart & Donaghue, 2011).

There is a paucity of research on the topic of appearing confident to others because of cosmetics. Previous research showed cosmetics make women feel confident, but how women who wear cosmetics appear to others has yet to be studied. Is the internal confidence boost of female teachers visible to others? Because of this paucity of research, the current study was designed to experimentally assess the relationship between confidence produced by cosmetics and student retention.

For the purpose of the current study, cosmetics was defined as the use of face powder, concealer, blush, lip gloss, mascara, eye liner, and eye shadow. Confidence was operationalized as appearing assured and knowledgeable as communicated via word fluency and fluidity, eye contact, projection, tone, and engagement with the audience. This was assessed on a 5-point Likert scale developed for the purpose of the current study.

The current study included three hypotheses: (a) female teachers appear more confident to their classes when wearing cosmetics, (b) students retain more information provided by a teacher who appears confident because of cosmetics, and (c) a relationship between teacher confidence (produced by wearing cosmetics) and student retention exists.
Method

The independent variable under consideration in the current study was a female teacher wearing cosmetics or not. The two dependent variables considered were how confident the female teacher appeared to participants and how much information the students retained from a mini-lesson on facial anatomy.

Participants

Participants were 60 (39 females, 21 males) undergraduate students, sourced via convenience sampling, randomly assigned via Excel random number generator to view a pre-recorded mini-lesson under one of two conditions (female teacher wearing cosmetics or female teacher not wearing cosmetics). There were 30 participants in each of the two conditions. No other demographic data were collected. The experiment was conducted in college classrooms and participants were compensated via course or extra credit. Three participants were excluded from data analysis as they did not follow experimenter instructions and used internet assistance when completing their multiple choice quizzes.

Procedure

After signed consent forms were collected and questions were answered, participants were asked to remain silent for the remainder of the experiment. The true purpose of the study was withheld from participants so as to not prime them. The procedures of the experiment were explained to participants and they were instructed to clear their desks and focus (i.e., keep their eyes on the teacher and not communicate with one another) on the recorded facial anatomy mini-lesson for its entirety (8 min). The mini-lesson was video recorded to ensure consistency between conditions, and phonetic spelling in a medical dictionary (Medilexicon, 2014) was used to ensure proper and consistent term pronunciation. Facial anatomy was chosen as the mini-lesson topic to draw attention to the teacher's face and increase the probability participants would notice the presence or absence of cosmetics. Facial anatomy was also chosen as the mini-lesson topic as the challenging nature of the content would prevent floor and ceiling effects on the multiple choice quiz. On conclusion of the mini-lesson, participants were given 1 min to mentally reflect on how confident the teacher appeared. Post reflection, participants were given 10 minutes to complete the confidence assessment and 10-item multiple choice quiz on facial anatomy. When the 10 minutes expired, participants were debriefed as to the purpose of the study, thanked for their time, given their course or extra credit, and dismissed.

Materials

The mini-lesson on facial anatomy was recorded using an Apple iPhone 5. Teleprompter software (Teleprompter v1.0.3.0) was used to aid in the video recording process and the recorded mini-lesson was projected in classrooms via an HP G62 notebook PC through a NEC NP 410 projector. The facial anatomy mini-lesson was recited using a script (see Appendix A) to maintain consistency in content and word choice continuity between conditions. Participants were asked to complete (a) a teacher confidence assessment including demographic questions (see Appendix B) and
(b) multiple choice quiz on mini-lesson content (see Appendix C). As part of the teacher confidence assessment, participants were provided the operational definition of confidence to ensure a focus on teacher confidence rather than competence. Quiz questions were sourced from the same textbook (Brand & Isselhard, 2003) used as the source for mini-lesson content.

Results

Confidence assessments were sorted by cosmetics condition and analyzed. The average confidence rating of the teacher in the cosmetics condition was 3.63 points out of 5 possible points and the standard deviation was 0.85 points. The average confidence rating of the teacher in the no cosmetics condition was 3.37 points out of 5 possible points and the standard deviation was 0.81 points (see Figure 1).

![Figure 1](image)

*Figure 1.* The Mann-Whitney U was used to analyze data in this condition and found no significant difference ($p = .225$) in average confidence rating. This pattern of results refutes hypothesis 1.

An Anderson Darling test (Anderson & Darling, 1952) was conducted on data from each cosmetics condition to determine whether they were normally distributed. Because the data were determined to not be normally distributed, multiple choice scores and confidence assessment scores were analyzed using the Mann-Whitney U (Ryan & Joiner, 2001), the non-parametric alternative to the two sample t-test. An $\alpha = .05$ was adopted for drawing conclusions about confidence assessment scores and multiple choice quiz scores in both conditions.
The Mann-Whitney $U$ (Ryan & Joiner, 2001) showed no significant difference in mean confidence ratings between conditions ($p = .23$). Multiple choice quiz scores were also sorted by cosmetics condition and analyzed. In the cosmetics condition, the average multiple choice quiz score was 4.50 correct out of 10 possible points and the standard deviation was 1.60 points. In the no cosmetics condition, the average multiple choice quiz score was 4.40 correct out of 10 possible points and the standard deviation was 1.43 points (see Figure 2). Average multiple choice quiz scores from both conditions were further analyzed using the Mann-Whitney $U$ and no significant difference in average quiz scores was found between cosmetics conditions ($p = .58$).

![Figure 2](image)

*Figure 2.* The Mann-Whitney $U$ was used to analyze data in this condition and found no significant difference ($p = .582$) in average quiz score. This pattern of results refutes hypothesis 2.

The results of the multiple choice quiz were compared to the results of the confidence assessment using the Pearson correlation coefficient ($r$). This statistical procedure was used because of the discrete values used in the confidence assessment. No correlation existed between confidence produced by cosmetics and student retention in either condition (cosmetics condition, $r = -.17$ ($p = .38$); no cosmetics condition, $r = .11$ ($p = .57$)).

**Discussion**

The results of the current study do not support the three hypotheses of the current study. Those hypotheses were (a) female teachers appear more confident to their class when wearing cosmetics, (b) students retain more information provided by a teacher who appears confident because of cosmetics, and, (c) a relationship between teacher
confidence (produced by wearing cosmetics) and student retention exists. The pattern of results displayed in Figure 1 indicates female teachers do not appear more confident when wearing cosmetics. These findings refute hypothesis 1. The pattern of results displayed in Figure 2 demonstrates students did not retain more information from the teacher who was wearing cosmetics. This pattern of results indicates teachers who wear cosmetics do not appear more confident to their students, and, subsequently, their students do not retain more information from their lessons. The lack of correlation between confidence produced by cosmetics and student retention in either condition indicates there is no relationship between these variables. Therefore, hypothesis 3 is also not supported.

Previous research focused on how cosmetics make women feel. Until now, it was unclear how cosmetics made women appear to others. In the current study, self-report data from participants in both conditions showed the teacher lacked eye contact but was fluent and precise in her speech. These are likely reasons participants in both conditions rated the female teacher as of "average" confidence (3.63 out of 5 in the cosmetics condition and 3.37 out of 5 in the no cosmetics condition). This average rating is in line with research conducted by Jerez-Fernandez et al. (2014) indicating that speakers who make consistent eye contact and who are precise with their speech are rated as more confident by observers.

It is recommended that future research in this area increase experimental realism to increase the ability to extrapolate from an experimental to classroom setting. One suggestion is to have participants view a live mini-lesson rather than a video recorded mini-lesson. Another option is to lengthen the duration of the mini-lesson to more closely reflect the duration of a college course meeting. As for extension, it would be of interest to replicate the current or proposed studies on participants from different age groups (e.g., elementary, middle, and high school). It is quite possible that those from these distinct age groups may be more attuned to cosmetics use, thus impacting assessments of teacher confidence.

As it has been shown that the use of cosmetics increases confidence (Dellinger & Williams, 1997), confidence increases teaching effectiveness (Sadler, 2013), and external judgment of one's confidence is assessed based on eye contact and precision of speech (Jerez-Fernandez et al., 2014), we can conclude that when perceived confidence and student retention are a teacher's focus, it is more important for that teacher to be concerned with eye contact and linguistic precision than wearing cosmetics. Because the current study is the first of its type, it will be interesting to discover if further studies prove these results to be reliable. Findings of this nature could change the culture of cosmetics use in our society. As it stands, there is no need for female teachers to wear cosmetics to increase perceived confidence.

References


Teleprompter (Version 1.0.3.0) [Computer software]. Toledo, OH: Telepromptermirror.


**Appendix A**

*Indicates gesture to face and/or example facial expression*

Hi class. Today we will be discussing three topics: (1) the osteology of the skull and face, which is the bones that make up the skull and face, (2) the muscles involved in mastication or chewing, and, (3) finally, the muscles involved in facial expression.
First, there are eight bones that make up the neurocranium. The neurocranium are the bones that surround the brain. The first four bones are single bones; they are the frontal bone (forehead*), the sphenoid bone, which can be found behind* eyes, the ethmoid bone which is the upper half of nasal septum,* and the occipital bone or the back of the skull.* The next two bones are paired, meaning you have one of these on each side of your head. They are the 2 temporal bones or temples* and the 2 parietal bones or the top of the head.* As I said before, these bones are the bones that surround our brains.

Now, there are 14 bones make up our faces. The first two bones are singular, meaning there is only one of them. They are the mandible or jaw* and the vomer, which is the opposite of the ethmoid, and makes up the lower half of the nasal septum.* The next six bones are paired, which means you have one of them on each side of your face. They are the nasal bones (which make up the bridge of your nose, where your glasses rest*), the lacrimal bones (which make up your eye sockets*), the zygomatic bones (or cheek bones*), the inferior nasal conchae (which is located inside your nose), palatine bones, and maxillae (upper jaw*). Now that we've touched on bone structure, we'll discuss musculature.

The process of chewing is called mastication. There are four pairs of muscles located near the mouth that humans need to chew properly. Those muscles are all attached to the mandible (lower part of the jaw*), and they aid in moving the jaw up, down, forward, backward, and side to side. The most powerful of the four muscle pairs is the masseter muscle (which runs from your check bones to the lower part of your mandible or, jaw*). The masseter muscle aids in closing your mouth. The next muscle is your temporal muscle, which arches from the top of your ear to your temples.* The temporal muscle makes it possible to pull your jaw (mandible) backward. The third muscle pair is called the medial pterygoid muscle. The medial pterygoid muscles attach to your upper jaw (maxillae) and run down to the lower jaw (mandible).* When these muscles contract, the mouth closes. The last pair of muscles involved in chewing is the lateral pterygoid muscle. These muscles are located about an inch back from the eyes* and are used when we bite into something. These four muscle pairs we just discussed aid in closing the mouth.

Now, we will discuss the muscles involved in opening the mouth. Opening the mouth is controlled by muscles in the neck called hyoid muscles. They are called hyoid muscles because they are associated with the hyoid bone in the neck. The muscles located above the hyoid bone are called suprhyoid muscles and the muscles located below the hyoid bone are called infrathyroid muscles. Together, these muscles enable us to open our mouths.

Muscles are used for more than just opening and closing the mouth; we also use them when we make facial expressions. Although the term is "facial" expression, some of the muscles involved in this expression are not actually located in the face. They can be found near the ears, in the scalp and neck, and around the eyes, nose, and mouth.

The first set of muscles involved in facial expression can be found around the ears; they are called the auricular muscles. There are three kinds of auricular muscles. The first kind are the anterior auricular muscles, and they start at the top of the ear and extend forward about one inch.* The contraction of this muscle pulls the ears forward
slightly. The second kind of auricular muscles are called the superior auricular muscles. The superior auricular muscles also start at the top of the ear, but instead of extending forward, they extend straight up into the scalp.* This set of muscles aids in lifting the ear up. The third and final set of auricular muscles is called the posterior auricular muscles. The posterior auricular muscles are located at the back of the ear and also extend back about an inch.* These muscles aid in pulling the ear back.

There is only one muscle in the scalp that aids in facial expression; it is called the occipitofrontalis (epicranius). This muscle contains two groups of muscle fibers that are connected by a broad band of connective tissue. These muscles allow for forward or backward movement of the scalp. The forward movement of the occipitofrontalis (epicranius) results in a frown and the backward movement of the occipitofrontalis (epicranius) results in a surprised look.*

There is also only one muscle in the neck that aids in facial expression. That muscle is called the platysma. The platysma muscle runs from the clavicle, up the sides of the neck and extends to the upper lip.* The platysma muscle aids in pulling the sides of the mouth down or pulling the skin of the upper chest up, like this...*

There are three muscles located near the eyes that also aid in facial expression. The first set of muscles is the orbicularis oculi. The orbicularis oculi are circular muscles that can be found around the eye socket. The muscles attach at the outer edge and middle of the eye lid* and they aid in raising the upper eye lid. The second set of muscles located near the eye are the corrugators. The corrugators run up the bridge of the nose and extend part way into the eyebrows.* The last set of muscles located near the eyes is the procerus. The procerus also run up the bridge of the nose, but instead of extending in to the eyebrows, they continue into the forehead.* The corrugators and procerus both aid in pulling the eyebrows in and down, as in a frown, like this...*

Finally, there are five muscles around the mouth that aid in facial expression. The first of these muscles is the levator labii superioris. The levator labii superioris is located just above the upper lip, and it extends about an inch up into the cheek.* The second and third of the muscles located near the mouth that aid in facial expression are the zygomaticus minor and major. The zygomaticus minor and major are located right next to the levator labii superioris, and they extend the same amount into the cheek as the lavator labii superioris. The zygomaticus minor and major aid in raising the upper lip and the corners of the mouth, as in a smile.* The fourth muscle located near the mouth that aids in facial expression is the mentalis. The mentalis is located just below the mandible, in what we would call the chin. When the mentalis contracts, it raises the skin of the chin. The fifth and final muscle located near the mouth that aids in facial expression is called the buccinator. The buccinator starts at the corners of the mouth and extends into the cheeks and down part of the neck.* The buccinator aids in pulling back the corners of the mouth and compressing the cheeks. The buccinator is also important because it aids in mastication.

That concludes our mini lesson. I hope you found this interesting and I thank you for your attention and participation.

Appendix B

Confidence Assessment
Confidence: Speaker appears assured & knowledgeable; communicated through word fluency/fluidity, eye contact, projection, tone, & engagement

1. List 4 reasons you found the teacher to be confident or not based on the above definition of confidence.

2. Using the following 5-point scale, rate how confident you found the teacher by filling in the appropriate bubble.

   1                               2                               3
   4                               5

   Not Confident                                    Average Confidence              Above
   Average Confidence

3. Was the teacher wearing make-up?

   Yes                            No

4. Please select the gender you most closely identify with by filling in the appropriate bubble.

   Male                        Female

   Thank you for your time and participation!

Appendix C

Multiple Choice Quiz

Answers are labeled in bold

Answer the following 10 questions to the best of your ability. Indicate your answer by circling the appropriate letter. [Answers are indicated in bold]

• Which of the following is not a bone of the neurocranium?
  ◦ Frontal
  ◦ Parietal
  ◦ Sphenoid
  ◦ They are all bones of the neurocranium

• Chewing is another word for...
  ◦ Mastication
  ◦ Mandible
  ◦ Masseter
  ◦ Vomer

• Opening the mouth is controlled by which muscle?
  ◦ Auricular muscles
  ◦ Occipitofrontalis (epicranius)
- **Hyoid muscles**
  - Platysma

- How many bones make up the human face?
  - 5
  - 9
  - 12
  - 14

- Which of the following bones are paired?
  - The nasal bones
  - The lacrimal bones
  - The zygomatic bones
  - **All of the above**

- How many pairs of muscles are needed for proper mastication?
  - 8
  - 4
  - 10
  - 2

- The masseter muscle aids in...
  - **Closing your mouth**
  - Opening your mouth
  - Moving the mandible forwards
  - Moving the mandible backwards

- Muscles involved in facial expression can be found in...
  - The back
  - The shoulders
  - **The scalp**
  - The arms

- The occipitofrontalis (epicranius) is responsible for...
  - Raising the eyebrows
  - **Moving the scalp**
  - Chewing
  - Frowning

- The mentalis is located...
  - **Just below the mandible (the chin)**
  - Just above the upper lip (the cheeks)
  - Near the eyes
  - In the nose