Online Social Comparison and Impostor Phenomenon Among Choral Music Educators

Thomas J. Rinn[1]

Abstract

The purpose of this study was to examine the degree to which selected demographic variables and online social comparison predict Impostor Phenomenon (IP) among choral music educators. Participants ($N = 143$) provided demographic information and completed an adapted version of the Iowa Netherlands Social Comparison Orientation Measure (INCOM) and the Clance Impostor Scale (CIPS). IP was prevalent among participants with 62.3% experiencing frequent to intense IP symptoms. Participants reported engaging in online social comparison on multiple social media platforms and most frequently experienced upward comparison. Upward and non-directional online social comparison were significant predictors of IP and accounted for 30.8% of the variance in IP scores. There was a significant, negative correlation ($r = -.36$, $p < .001$) between downward social comparison and CIPS scores. Implications for music educators are discussed, emphasizing the need for strategies to mitigate the negative impacts of online social comparison and foster supportive, authentic interactions among colleagues.

Keywords: choral, social comparison, Impostor Phenomenon, CIPS, social media

[1] School of Music, Texas State University, San Marcos, TX, USA

Corresponding author: Thomas J. Rinn, Texas State University, 601 University Dr #101, San Marcos, TX 78666, USA. Email: Thomas.Rinn@txstate.edu

Online Social Comparison and Impostor Phenomenon Among Choral Music Educators

Psychologists have extensively explored the human inclination towards social comparisons. Early theories posited that the fundamental need for social status (Maslow, 1943) motivated individuals to compare themselves to others when there was no physical measure by which to assess their ability (Festinger, 1954). Scholars have observed that individuals may engage in upward comparison, where they perceive others as superior to themselves (Wheeler, 1966), or downward comparison, where they evaluate themselves against those they perceive as less fortunate (Wills, 1981). Social comparison led individuals to experience improved or deteriorated self-evaluation (Buunk et al., 1990), particularly when they compared themselves to others who shared attributes and skills central to their self-concept, such as colleagues in a similar profession (Lockwood & Kunda, 1997). In professional settings, researchers identified social interactions as a significant source of work-related stress, as individuals strived to establish rapport and status among colleagues through competitive achievement and recognition (Buunk & Yberra, 1997). Powell (2023) noted that within music education "the social tendency to compare and imitate has been morphed into an antagonistic structure" potentially resulting in various adverse outcomes (p. 40). Given the frequency of social comparison in professional contexts and its recognition within the field, further investigation into the prevalence and ramifications of social comparison within the music education profession is warranted.

Online Social Comparison

A substantial amount of contemporary inquiry into social comparison has focused on interactions in online contexts, particularly social media. Since the introduction of social networking sites (SNSs) in the early 2000s, online user identities have grown from approximately 25 million to over 5 billion in 2024, representing 84.2% of the global population for those aged 18 and older (Kemp, 2024). Interactions on SNSs are not limited to one's personal life. Over 20% of social media users reported using SNSs for work-related activities (Kemp, 2024). In a survey conducted by the Pew Research Institute, 78% of Americans who used social media for work-related activities reported that it was useful for networking and finding new job opportunities (Olmstead et al., 2015). The same survey indicated that 17% of workers utilized social media to diminish and enhance their professional perceptions of colleagues. Within music education, professionals commonly engage in online communities for professional development and social interaction (Palmquist & Barnes, 2015; Rickels & Brewer, 2017; Wayman, 2016). Considering these observations, it is plausible that the rise in social media usage will increasingly impact the professional lives of music educators.

Online social interactions may exacerbate social comparison and lead to different outcomes than face-to-face interactions. Facebook has provided a constant window into the lives of others and provided a fertile ground for individuals to compare themselves to others

(Appel et al., 2016). Reinecke and Trepte (2014) reported that comparisons may be compounded by the positive bias that permeates social media. For example, researchers noted that in online environments, individuals tended to post idealistic images of themselves that were not fully representative of their real lives (Schau & Gilly, 2003) which might have magnified the general tendency for individuals to underestimate others negative emotions (Jordan et al., 2011). In the context of one's professional life, individuals have engaged in self-promotion and "humblebragging" to garner attention leading to professional and economic gain (Hietmayer, 2024; Lenardic et al., 2022, Sezer et al., 2018). For some, viewing idealized posts on Facebook led them to perceive that others were happier and living better lives than themselves, particularly when they compared themselves to Facebook friends that they did not know personally in offline contexts (Chou & Edge, 2012). Researchers have investigated the effects of online social comparison using a variety of constructs in populations of both young adults and professionals and observed unfavorable consequences such as depleted self-concept and job satisfaction (Haferkamp & Krämer, 2011), lowered self-esteem and self-concept (Lim & Yang, 2015; Vogel et al., 2014), lowered well-being (Kross et al., 2013), and higher levels of depression and anxiety (Brandenberg et al., 2019; Seabrook et al., 2016; Steers et al., 2014; Tandoc et al., 2015). Collectively, the literature suggests that SNSs serve as a significant catalyst for social comparison, with potential implications for adverse health and well-being outcomes.

More nuanced investigations of social comparison revealed varied consequences for upward, downward, and non-directional social comparison. Researchers have termed the negative feelings from upward comparisons on social media as "Facebook envy" and found that it correlated with decreased life satisfaction (Krasnova et al., 2013) and increased depression (Appel et al., 2015; Tandoc et al., 2015). In contrast, others observed that downward comparison was associated with less depressive symptoms (Lup et al., 2015). Within the context of working professionals on SNSs, upward comparison has led to career frustration and downward comparison decreased frustration (Fukubayashi & Fuji, 2021). For some individuals, a large network of Facebook friends increased their perceptions of social support and lowered their perceived stress, leading to improved psychological well-being and physical health benefits (Nabi et al., 2013). The mixed findings suggest that the outcomes of online social comparison vary depending on the direction of the comparison.

Impostor Phenomenon

Several scholars have investigated the effects of social comparison through the framework of Impostor Phenomenon (IP). First identified by psychologists Clance and Imes (1978), IP describes the experience of highly successful individuals who despite earning accolades, exhibit symptoms of anxiety, lack of self-confidence, and frustration with themselves. Those suffering from IP often feel like frauds, attribute their success to overpreparation or luck, and tend to discount any praise for their achievements (Clance, 1985). Although early studies reported a correlation between gender and IP, subsequent investigations have found that

IP can manifest in anyone (Bravata et al., 2020). Harvey and Katz (1984) noted that certain vocations, particularly those in the arts, may foster IP as they require individuals to constantly take on novel and varied tasks. Elevated levels of IP among professionals have been associated with diminished job satisfaction (Hutchins et al., 2018; Vergauwe et al., 2015) and recognized as a hindrance to career progression (Neureiter & Traut-Mattausch, 2016).

Within music education, researchers have identified the prevalence of IP among university faculty (Ramey, 2022; Sims & Cassidy, 2019), graduate students (Sims & Cassidy, 2020), student teachers (Sorenson, 2022), and undergraduate students (Nápoles et al., 2024; Rinn, 2024; Silvey et al., 2024). Results from these studies indicated that those in the music education profession experienced frequent to intense IP related to research expectations (Sims & Cassidy, 2019; Ramey, 2022), teaching assignments (Sims & Cassidy, 2019; Ramey, 2022), and during student teaching experiences (Sorenson, 2022). Additionally, Nápoles et al. (2024) identified IP as a significant predictor of academic burnout among undergraduate music education majors. Across various demographic variables, individuals in the field of music education reported some level of IP, with most experiencing frequent to intense impostor feelings.

Online Social Comparison and IP

Scholars have observed that those who engage in more frequent social comparisons also report high levels of IP among populations of university students (Fassl et al., 2020; Fraenza, 2016), university faculty members (Hutchins & Rainbolt, 2017), and primary school students (Chayer & Bouffard, 2010). Two recent studies have specifically identified online social comparison as an agitator of IP. In a qualitative examination of early career tenure track college faculty, participants described feelings of fraudulence derived from observing colleagues post about accomplishments on social media and noted that it perpetuated their impostor phenomenon (Guillaume et al., 2019). Among undergraduate music education students, Rinn (2024), found social comparison on Facebook to be a significant predictor of impostor phenomenon. These findings situate IP as a salient psychological construct associated with social comparison in these populations. However, I found no studies that examined this relationship among K–12 teachers.

Given the prevalence of IP within the music education profession, the identification of social comparison as a theoretical construct among music teachers, and the identified links between the two constructs, the purpose of this study was to examine the degree to which selected demographic variables and online comparison predict IP among choral music educators. Specifically, the relationships between upward, downward, and non-directional online comparison and IP were of interest. Research questions included:

1. To what extent do choir teachers experience IP and online social comparison?

2. To what extent do upward, downward, and non-directional social comparison, and years of experience, predict IP among choir teachers?

Method

Development of the Questionnaire

The questionnaire consisted of three sections: demographic questions, questions related to online social comparison (COM-SM), and questions related to IP (CIPS). Demographic variables included those relevant to the teaching context, such as the level taught and years of experience. Participants were asked to indicate the extent to which they engaged in social comparison on various online platforms by reporting their observations of other choir teachers on popular SNSs such as Facebook, Instagram, and LinkedIn.

Participants

I conducted an a priori power analysis using G*Power (Version 3.1.9.6; Faul et al., 2007) with an alpha level of .05, a power level of .80, an effect size of $f^2 = .15$, and four predictor variables. Results indicated a minimum sample size of 85. Because Facebook is the most popular SNSs among adult professionals (Kemp, 2024) and is frequently used by music teachers for professional engagement (Rickels & Brewer, 2017; Rinn, 2024; Wayman, 2016), I recruited participants using snowball sampling on Facebook. Researchers have identified snowball sampling using social media as a viable, efficient, and effective way to recruit study participants (Baltar & Brunet, 2012; Leighton et al., 2021). I made an initial post to two Facebook groups closely aligned with the target population of K–12 choir teachers inviting participants to complete the online questionnaire. Within the first 24 hours of posting, 112 participants responded to the survey. Following the recommendations of Leighton et al. (2021) for social media snowball sampling, I reposted the recruitment ad to the same groups seven days after the initial post, resulting in a second peak of 33 responses. In total, 187 participants responded over a two-week data collection period. Further scrutiny revealed 41 incomplete surveys which I excluded from analysis. Additionally, through examination of box plots, I identified three extreme outliers which I removed resulting in a final sample of $N = 143$.

Participants responded to two race/ethnicity questions which I used to identify race categories as defined by the National Center for Education Statistics (U.S. Department of Education, 2023). Most respondents described their race as White ($n = 110$, 76.92%). Twenty-four indicated they were of Hispanic heritage. Only a few participants identified as Asian ($n = 4$) or two or more races ($n = 4$). One participant identified as Black or African American.

The responding teachers ranged from those in their first year of teaching ($n = 5$) to one veteran teacher with 44 years of experience ($M = 15.72$, SD $= 9.49$). All participants were employed as choir teachers in the United States. Most indicated that they primarily worked with students in middle school ($n = 39$) or high school ($n = 83$). Six teachers taught children in elementary grades. Nine participants reported teaching a combination of middle school and high school students and three taught students at both the elementary and middle school level. Additionally, three participants indicated they taught at all levels, K–12.

Social Comparison

The Iowa-Netherlands Comparison Orientation Measure (INCOM) contains 11-items that measure general social comparison tendencies and has been shown to be psychometrically valid in varied populations, contexts, and languages since its inception over twenty years ago (Gibbons & Buunk, 1999; Rose et. al, 2024; Schneider & Schupp, 2013). Researchers have used both the full scale and shortened versions to measure online social comparison (e.g. Bergagna & Tartaglia, 2018; Fukubayashi, 2021; Han et al., 2020; Song, et al., 2019; Steers et al., 2014). Steers et al. (2014) developed a 6-item scale to measure upward, downward, and non-directional online social comparison by selecting items with the highest factor loadings from the 11-item INCOM. The scale was administered daily during a 14-day diary study using a 9-point scale and showed excellent test-retest reliability. Fukubayahi and Fuji (2021) adapted the same 6-item scale to measure online social comparison in the context of participants' careers and found that the 6 items were again the highest loading items of the original INCOM, and showed excellent reliability as measured using correlation coefficients (upward $r = .90$; downward, $r = .89$; non-directional $r = .87$). Positive correlation coefficients in all directions of comparison with the frequency of viewing social media provided evidence of validity in accord with the results of existing literature (N. Fukubayashi, personal communication, August 6, 2024). Following the work of Steers et al. (2014) and Fukubayashi and Fuji (2021), I measured upward, downward, and non-directional social comparison using the same scale (COM-SM). I modified the question stems by replacing "Facebook" with "viewing social media" and changed the reference to one's career to "as a choir teacher" (see Appendix Figure A1). To estimate reliability, I used the Spearman-Brown coefficient recommended as the most appropriate reliability statistic for a two-item scale and found reliability to be fair to good (DeVet et al., 2017; Eisinga et al., 2013) for all three subscales (upward $\rho = .70$; downward, $\rho = .79$; non-directional $\rho = .61$). Participants indicated to what extent they agreed with statements such as "When viewing social media, I feel less confident about myself as a choir teacher compared to other people" using a 9-point scale ranging from *strongly disagree* (1) to *strongly agree* (9).

Impostor Phenomenon

With the permission of the scale creator, I measured IP using the Clance Impostor Scale (CIPS; Clance, 1985). The CIPS is the preferred instrument for measuring IP in non-clinical populations and is a valid and reliable instrument in multiple contexts (Holmes et al., 1993). The scale contains 20 statements that participants rate from 1 (*not at all true*) to 5 (*very true*). CIPS scores are calculated by summing the ratings of the items resulting in an overall score of 20–100. Within the field of music education, investigators regularly use the CIPS to measure IP among undergraduate and graduate students and professionals in the field (e.g., Nápoles et al., 2024; Rinn, 2024; Silvey et al., 2024; Sims & Cassidy, 2019, 2020). The internal reliability of the CIPS was excellent in the current study ($\alpha = .93$).

Results

IP was prevalent among participants. According to Clance (1985), individuals with a total score of 40 or less have *few* impostor characteristics. Those scoring between 41 and 60 have *moderate* IP feelings. A score between 61 and 80 indicates frequent IP experiences and those scoring over 80 display *intense* IP symptoms. Scores on the CIPS ranged from 31 to 95 ($M = 64.72$, $SD = 16.29$). Mean IP scores were similar across demographic variables (see Table 1). Only 9.1% ($n = 13$) of participants reported few IP symptoms and 28.7% fell into the moderate category. The biggest group (46.2%, $n = 66$), reported frequent IP experiences and 23 (16.1%) suffered from intense IP.

Table 1

CIPS Scores by Demographic Variables

	CIPS Score	
	M	*SD*
Level Taught		
Elementary	66.50	18.20
Middle School	62.26	18.01
High School	65.33	15.37
Multiple Levels	67.07	16.79
Race/Ethnicity		
Hispanic	67.17	15.26
White	63.75	16.73
Asian	61.00	7.53
Black or African American	82.00	0.00
Two or more	76.25	13.12

As an exploratory question, participants reported how often they observed other choral music educators on various social networking sites (SNSs) using a 5-point scale ranging from *never* (1) to *always* (5). Results indicated that participants most often observed other choral music educators on Facebook ($M = 4.17$, $SD = .65$). Almost all participants, 90.20% indicated that they *often* or *always* observe other choral music educators on Facebook. Other SNSs where participants observed choral educators included Instagram ($M = 2.90$, $SD = 1.20$), YouTube ($M = 2.62$, $SD = 1.05$), and TikTok ($M = 2.13$, $SD = 1.11$). Only two participants indicated that they *often* or *always* observed colleagues using Twitter/X and it was the only SNS with mean scores falling between *never* and *rarely* ($M = 1.48$, $SD = .77$).

Participants indicated the extent to which they agreed with two statements each for upward, downward, and non-directional social comparison (COM-SM) using a 9-point scale ranging from *strongly disagree* (1) to *strongly agree* (9). Respondents most often engaged in upward social comparison when observing other choir teachers online ($M = 12.76$, $SD = 3.62$), followed by non-directional comparison ($M = 11.99$, $SD = 3.64$), and finally by downward comparison ($M = 8.61$, $SD = 3.55$). The statement "When viewing social media, I conclude that I am not as well-known as a choir teacher as other choir teachers" was the statement participants most agreed with ($M = 7.31$, $SD = 2.02$). Scores were similar across all demographic variables (see Table 2).

Table 2

Online Social Comparison Scores by Demographic Variables

| | Online Social Comparison | | | | | |
| | Downward | | Upward | | Non-Directional | |
	M	SD	M	SD	M	SD
Level Taught						
Elementary	9.00	3.29	11.33	3.72	13.00	1.41
Middle School	8.13	3.64	12.38	3.78	11.62	3.98
High School	9.00	3.68	12.83	3.71	12.02	3.73
Multiple Levels	7.53	2.39	13.93	2.46	12.40	2.90
Race/Ethnicity						
Hispanic	7.17	3.58	12.96	4.36	12.04	3.77
White	8.81	3.47	12.75	3.49	11.93	3.72
Asian	9.25	3.20	11.25	3.86	11.75	2.36
Black or African American	11.00	0.00	11.00	0.00	11.00	0.00
Two or more	10.50	4.80	13.75	3.30	14.00	2.16

To explore the relationships between each type of online social comparison and IP, I first examined the correlations between variables (see Table 3). Years of experience showed significant correlations with IP (CIPS), downward, and upward online social comparison but varied in the direction of correlation. Higher scores on the CIPS indicate that an individual is experiencing more frequent feelings of IP. Online upward comparison had a moderate and significant positive relationship with IP ($r = .51$, $p < .001$). Non-directional online social comparison had a weaker, but significant positive correlation with CIPS scores ($r = .37$, $p < .001$). In contrast, downward comparison had a significant negative correlation with feelings of IP ($r = -.36$, $p < .001$). As an individual's tendency to compare to those they deemed as better than themselves increased, they also experienced more symptoms of IP. Those who tended to compare to others they perceived as worse off than themselves experienced fewer impostor feelings.

Table 3

Correlations between CIPS, Online Social Comparison, and Years of Experience

Variable	1	2	3	4	5
1. Years of Experience	—				
2. CIPS	-.20*	—			
3. Downward Comparison	.27**	-.36**	—		
4. Upward Comparison	-.26**	.51**	-.53**	—	
5. Non-Directional Comparison	-.01	.37**	-.01	.31**	—

*p<.05

**p<.001

To determine which, if any, variables were useful in predicting IP, I calculated a stepwise multiple regression with the predictor variables of years of experience, upward online comparison, downward online comparison, and non-directional online comparison with CIPS as the dependent variable. To test the assumptions for multiple regression, I examined residual plots and confirmed that the assumptions of normality, linearity, and homoscedasticity were met. Calculation of Mahalanobis distances revealed no multivariate outliers. Both tolerance values and VIF values indicated no violations of multicollinearity. Thus, I proceeded with a stepwise multiple regression using the same predictor variables.

Two variables—online upward social comparison and non-directional social comparison—were significant and entered into the model. The overall model was significant ($R^2 =$

.308, $F(2, 141) = 48.92$, $p < .001$) and accounted for 30.8% of the variance in CIPS scores (see Table 4). In addition, beta coefficients indicated that upward comparison had almost twice the influence of non-directional comparison on CIPS scores. The fitted regression model was CIPS = 27.072 + 1.959(upward comparison) + 1.054(non-directional comparison). An ANOVA summary table and coefficients table are presented in the appendix Tables A1 and A2.

Table 4
Model Summary Predicting CIPS

Model	R	R^2	Adj. R^2	SE	ΔR^2	df_1	df_2	ΔSig. F
1	.508[a]	.258	.252	14.083	.258	1	141	<.001
2	.555[b]	.308	.298	13.645	.050	1	140	.002

[a]Predictor: online upward social comparison

[b]Predictor: online upward social comparison, online non-directional social comparison

Discussion

The purpose of this study was to examine the degree to which selected demographic variables and upward, downward, and non-directional online social comparison predict IP among choral music educators. Online upward and non-directional social comparison were the only significant predictors of IP. Previous studies have identified a relationship between the general construct of online social comparison and IP in music education undergraduates (Rinn, 2024) and early career tenure track university faculty (Guillaume et al., 2019) but did not differentiate between the directions of social comparison.

As in prior studies within music education, IP was widespread among participants. Among music education undergraduate students, Nápoles et al. (2024), Rinn (2024), and Silvey et al. (2024) found that most participants reported frequent IP. Sims and Cassidy reported similar results among music education graduate students (2019) and early career music education faculty members (2020). In the current study, most participants reported frequent IP and only 9.1% reported few IP experiences. These findings add to the mounting evidence that IP is endemic within the music education profession and adds in-service choir teachers to the groups suffering from IP.

Participants in this study frequently compared themselves to others when using social networking sites. Facebook was the most common SNS on which participants reported engaging in social comparison followed by Instagram. This result is unsurprising when considering the participants were initially recruited from professional Facebook groups. Although the popularity of Facebook has been surpassed by other platforms such as Instagram in recent years (Kemp, 2024), within the context of participants' professional lives,

Facebook continues to be influential in multiple populations. This finding supports reports that Facebook is the most commonly used SNS at work (Olmstead et al., 2015). Additionally, it aligns with Rinn's (2024) findings that music education undergraduates viewed Facebook as a professional networking tool, while other platforms such as Instagram were primarily used for personal purposes. Participants also engaged in social comparison on other SNSs including Instagram, YouTube, and TikTok, which affirmed reports that social media users typically use multiple platforms (Kemp, 2024). The results also support research that identified Facebook groups as online communities in which music educators sought social connectedness with colleagues (Palmquist & Barnes, 2015; Rickels & Brewer, 2017; Wayman, 2016). However, unlike these studies that identified positive outcomes of Facebook use such as professional development and community, the results of this study indicate possible adverse effects including social comparison and heightened IP.

The findings contribute to the literature by elucidating unique relationships between the various types of online social comparison and IP. Non-directional and upward social comparison had significant positive correlations with IP while downward social comparison had a significant negative correlation with IP. Like Buunk and colleagues (1990) observed in early investigations of social comparison, each direction of comparison had varied affective consequences. The current findings are similar to those that linked upward social comparison to adverse outcomes (Appel et al., 2015; Krasnova et al., 2013; Tandoc et al., 2015), and those that identified correlations between downward social comparison and more favorable outcomes (Fukubayashi & Fuji, 2021; Lup et al., 2015; Nabi et al., 2013). For choir teachers, upward, downward, and general online social comparisons have distinctive relationships with IP. More specifically, the general tendency to compare to others online and to compare to choir teacher participants perceived as better off than themselves was associated with higher levels of IP. In contrast, comparing to other choir teachers whom participants viewed as worse off than themselves was associated with lower IP.

For the participants in this study, non-directional and upward social comparison were significant predictors of IP. While other researchers have identified the prevalence of IP among music educators, few have considered possible predictors of IP within this population. Notably, among the variables investigated, upward social comparison was the most influential predictor of IP and had nearly twice the magnitude of non-directional social comparison. Although non-significant in the regression model, the significant negative correlation observed between downward social comparison and IP is of interest. It is plausible that downward social comparison may be a mitigator of IP and should be investigated in future studies.

The findings of this study have several implications for music educators. Although there are documented benefits of engaging in online communities for music educators (e.g. Rickels & Brewer, 2017; Wayman, 2016) it is imperative to recognize the possible risks involved. The positivity bias in self-presentation on an SNS may exacerbate the deleterious consequences of social comparison. Because of the potential social and material rewards asso-

ciated with positive self-presentation (Sezer et al., 2018) music educators may be motivated to use social media to curate an online identity that reaps personal gain. Beyond the individual, institutions within music education have monetized individuals' proclivity for social comparison by creating various contests that require individuals to self-nominate and sometimes pay entry fees to be awarded a prize in which the companies then extensively advertise using SNSs. This trend also extends to ensembles in models where music educators curate recordings and pay entry fees to be ranked against colleagues and subsequently promoted via social media. This kind of self-promotion, particularly when perceived as inauthentic or presented as a "humblebrag", may be ineffective (Sezer et al., 2018) and the results of this study highlight the potential adverse effects on music educators. By engaging in this kind of online self-promotion, music educators may be contributing to the competitive structures of music education that Powell (2023) identified as a threat to both the well-being of music educators and efficacy of school music education. It is also important to recognize that some forms of promotion may be motivated by external pressures such as the need to raise funds for an ensemble or to promote an individual's institution. In such situations, music educators should consider centering the goals of the post around the ensemble rather than themselves and limiting social media posts to professional accounts rather than targeting one's personal social network. For example, a post made via an ensembles social media account may be better received than making the same post on a personal account.

Alternatively, music educators may consider an altruistic lens when considering their professional social media use and engage in uplifting of colleagues rather than self-promotion. Expressions of gratitude and support for colleagues may strengthen social connections and enhance mental health and well-being for both the poster and the viewer (Sciara et al., 2021; Vaingankar et al., 2022). Other strategies such as limiting social media use, actively engaging on social media rather than passively scrolling, and removing "friends" or accounts followed on social media that instigate comparisons may be helpful in reducing the negative effects of online social comparison (Jed Foundation, 2024). Additionally, a critical evaluation of organizations that capitalize on the exploitation of individuals tendency to engage in social comparison is needed. While providing awards and prizes to music educators may ostensibly appear as a supportive gesture, these activities may also be harmful to the psychological well-being of many and serve only to create monetary gain for the organizations.

Those who facilitate professional SNS groups should consider how they encourage interaction within these groups. Because past literature indicates that individuals tend to overestimate others' happiness and underestimate their difficulties (Jordan et al., 2011), Burke et al. (2020) suggest online educational campaigns that remind viewers that others' lives are not as amazing as they may seem. In a professional SNS group, this might be accomplished by group managers personally posting reminders or having well-known practitioners in the field share authentic stories of professional difficulties they may have encountered. Simi-

larly, because they found that viewing negative emotions in friends' posts was associated with decreased social comparison, they suggest that encouraging SNS users to share more difficult moments of their lives on social media may help to mitigate social comparison. Because SNS users with large friend networks may be hesitant to post negative emotions (Wang et al., 2016), organizers of professional social media groups may use SNS tools such as private Facebook groups where the settings can be changed to allow anonymous posting. Supporting authentic sharing that combats the positive bias of SNSs by allowing anonymous posting and establishing communication norms and rules within online groups are possible strategies to mitigate social comparison.

When considering the findings of this study, one should note several limitations. Online snowball sampling does not allow for the calculation of an accurate response rate and limits the ability to generalize findings to a larger population. Additionally, the finding that Facebook was the most popular SNS in which participants engaged in online social comparison could be a result of sample bias as I initially recruited participants from posts on Facebook. However, because the typical SNS user engages on an average of 6.7 SNS each month (Kemp, 2024), it is unlikely that participants in this study did not also use other popular SNSs. Further research is needed to determine how individuals interact differently on various SNSs. Finally, although the regression model predicted 30.8% of the variance in IP, there is a substantial amount of variance still unexplained that warrants further investigation.

In future studies, researchers might use both quantitative and qualitative inquiry to explore what attributes and in what context music educators make online comparisons to colleagues. For example, do written statements regarding competitive success, videos of performances, or pictures invoke particular comparisons? What if any personal attributes predict an individual's tendency to engage in online social comparisons? Additionally, experimental methods that investigate strategies to mitigate comparisons in online environments might provide those who facilitate organized digital communities for music educators with strategies to support the psychological well-being of participants. Because IP has implications for the psychological health, career motivation, and burnout of inservice teachers, it is important that researchers continue to investigate both its causes and consequences. Finally, IP is only one possible outcome of online social comparison. Therefore, continued investigation of how online social comparison affects music educators may provide further insights.

It is important for choral music educators to understand that online social interactions may have consequences for both themselves and their professional colleagues. As digital interactions and professional development continue to proliferate in online contexts it is critical that both practitioners and researchers investigate possible benefits and risks. Ultimately, a better understanding of professional social media use may support the well-being of teachers.

References

Appel, H., Crusius, J., & Gerlach, A. L. (2015). Social comparison, envy, and depression on Facebook: A study looking at the effects of high comparison standards on depressed individuals. *Journal of Social and Clinical Psychology, 34*(4), 277–289. https://doi.org/10.1521/jscp.2015.34.4.277

Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology, 9,* 44–49. https://doi.org/10.1016/j.copsyc.2015.10.006

Baltar, F., & Brunet, I. (2012). Social research 2.0: Virtual snowball sampling method using Facebook. *Internet Research, 22*(1), 57–74. https://doi.org/10.1108/10662241211199960

Bergagna, E., & Tartaglia, S. (2018). Self-Esteem, Social Comparison, and Facebook Use. *Europe's Journal of Psychology, 14*(4), 831–845. https://doi.org/10.5964/ejop.v14i4.1592

Brandenberg, G., Ozimek, P., Bierhoff, H.W., & Janker, C. (2019). The relation between use intensity of private and professional SNS, social comparison, self-esteem, and depressive tendencies in the light of self-regulation. *Behaviour & Information Technology, 38*(6), 578–591. https://doi.org/10.1080/0144929X.2018.1545049

Bravata, D. M., Watts, S. A., Keefer, A. L., Madhusudhan, D. K., Taylor, K. T., Clark, D. M., Nelson, R. S., Cokley, K. O., & Hagg, H. K. (2020). Prevalence, predictors, and treatment of impostor syndrome: A systematic review. *Journal of General Internal Medicine, 35*(4), 1252–1275. https://doi.org/10.1007/s11606-019-05364-1

Burke, M., Cheng, J., & Gant, B. d. (2020). *Social Comparison and Facebook: Feedback, Positivity, and Opportunities for Comparison* Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, Honolulu, HI, USA. https://doi.org/10.1145/3313831.3376482

Buunk, B. P., Collins, R. L., Taylor, S. E., VanYperen, N. W., & Dakof, G. A. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology, 59*(6), 1238–1249. https://doi.org/10.1037/0022-3514.59.6.1238

Chayer, M.H., & Bouffard, T. (2010). Relations between impostor feelings and upward and downward identification and contrast among 10- to 12-year-old students. *European Journal of Psychology of Education, 25*(1), 125–140. https://doi.org/10.1007/s10212-009-0004-y

Chou, H. T. G., & Edge, N. (2012). "They are happier and having better lives than I am": The impact of using Facebook on perceptions of others' lives. *Cyberpsychology, Behavior, and Social Networking, 15*(2), 117–121. https://doi.org/10.1089/cyber.2011.0324

Clance, P. R. (1985). *The Impostor Phenomenon: Overcoming the fear that haunts your success.* Peachtree Publishers.

Clance, P. R., & Imes, S. A. (1978). The Impostor Phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice, 15*(3), 241–247. https://doi.org/10.1037/h0086006

de Vet, H. C. W., Mokkink, L. B., Mosmuller, D. G., & Terwee, C. B. (2017). Spearman-Brown prophecy formula and Cronbach's alpha: Different faces of reliability and opportunities for new applications. *Journal of Clinical Epidemiology, 85,* 45–49. https://doi.org/10.1016/j.jclinepi.2017.01.013

Eisinga, R., Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health, 58*(4), 637–642. https://doi.org/10.1007/s00038-012-0416-3

Fassl, F., Yanagida, T., & Kollmayer, M. (2020). Impostors dare to compare: Associations between the impostor phenomenon, gender typing, and social comparison orientation in university students. *Frontiers in Psychology, 11.* https://doi.org/10.3389/fpsyg.2021.720960

Faul, F., Erdfelder, E., Lang, A. g., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. https://doi.org/10.3758/BF03193146

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117–140. https://doi.org/10.1177/001872675400700202

Fraenza, C. B. (2016). The role of social influence in anxiety and the Impostor Phenomenon. *Online Learning, 20*(2), 230–243. https://doi.org/10.24059/olj.v20i2.618

Fukubayashi, N., & Fuji, K. (2021). Social comparison on social media increases career frustration: A focus on the mitigating effect of companionship. *Frontiers in Psychology, 12,* 720960. https://doi.org/10.3389/fpsyg.2021.720960

Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology, 76*(1), 129–142. https://doi.org/10.1037/0022-3514.76.1.129

Guillaume, R. O., Martinez, E., & Elue, C. (2019). Social media use, legitimacy, and Imposter Phenomenon: A collaborative autoethnography among early career faculty. *Journal of Ethnographic & Qualitative Research, 14*(2), 125–136.

Haferkamp, N., & Krämer, N. C. (2011). Social comparison 2.0: Examining the effects of online profiles on social-networking sites. *Cyberpsychology, Behavior, and Social Networking, 14*(5), 309–314. https://doi.org/10.1089/cyber.2010.0120

Han, R., Xu, J., Ge, Y., & Qin, Y. (2020). The impact of social media use on job burnout: the role of social comparison. *Frontiers in Public Health, 8.* https://10.3389/fpubh.2020.588097

Harvey, J. C., & Katz, C. (1984). *If I'm so successful, why do I feel like a fake?* St. Martin's Press.

Holmes, S. W., Kertay, L., Adamson, L. B., Holland, C. L., & Clance, P. R. (1993). Measuring the Impostor Phenomenon: A comparison of Clance's IP Scale and Harvey's I-P Scale. *Journal of Personality Assessment, 60*(1), 48–59. https://doi.org/10.1207/s15327752jpa6001_3

Hutchins, H. M., Penney, L. M., & Sublett, L. W. (2018). What imposters risk at work: Exploring Imposter Phenomenon, stress coping, and job outcomes. *Human Resource Development Quarterly, 29*(1), 31–48. https://doi.org/10.1002/hrdq.21304

Hutchins, H. M., & Rainbolt, H. (2017). What triggers Imposter Phenomenon among academic faculty? A critical incident study exploring antecedents, coping, and development opportunities. *Human Resource Development International, 20*(3), 194–214. https://doi.org/10.1080/13678868.2016.1248205

Jed Foundation. (2024). *Online social comparison and positive self-image.* Retrieved from https://familycenter.meta.com/education/resources/online-social-comparison/

Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin, 37*(1), 120–135. https://doi.org/10.1177/0146167210390822

Kemp, S. (2024). *Digital 2024: Global overview report.* https://datareportal.com/reports/digital-2024-global-overview-report

Krasnova, H., Wenninger, H., Widjaja, T., & Buxmann, P. (2013). Envy on Facebook: A hidden threat to users' life satisfaction? In T. Eymann & G. Schwabe (Eds.), *11th International Conference on Wirtschaftsinformatik* (pp. 1–16). Leipzig: Wirtschaftsinformatik. https://boris.unibe.ch/47080/1/WI%202013%20Final%20Submission%20Krasnova.pdf

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS One, 8*(8), e69841. https://doi.org/10.1371/journal.pone.0069841

Leighton, K., Kardong-Edgren, S., Schneidereith, T., & Foisy-Doll, C. (2021). Using social media and snowball sampling as an alternative recruitment strategy for research. *Clinical Simulation in Nursing, 55*, 37–42. https://doi.org/10.1016/j.ecns.2021.03.006

Lenardic, A., Seales, J., & Levander, A. (2022). The rise of the academic science humble brag. *Matter, 5*(3), 766–767. https://doi.org/10.1016/j.matt.2022.02.003

Lim, M., & Yang, Y. (2015). Effects of users' envy and shame on social comparison that occurs on social network services. *Computers in Human Behavior, 51*, 300–311. https://doi.org/10.1016/j.chb.2015.05.013

Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology, 73*(1), 91–103. https://doi.org/10.1037/0022-3514.73.1.91

Lup, K., Trub, L., & Rosenthal, L. (2015). Instagram #instasad?: Exploring associations among Instagram use, depressive symptoms, negative social comparison, and strangers followed. *Cyberpsychology, Behavior, and Social Networking, 18*(5), 247–252. https://doi.org/10.1089/cyber.2014.0560

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396. https://doi.org/10.1037/h0054346

Nabi, R. L., Prestin, A., & So, J. (2013). Facebook friends with (health) benefits? Exploring social network site use and perceptions of social support, stress, and well-being. *Cyberpsychology, Behavior, and Social Networking, 16*(10), 721–727. https://doi.org/10.1089/cyber.2012.0521

Nápoles, J., Springer, D. G., Silvey, B. A., Montemayor, M., & Rinn, T. J. (2024). Burnout and impostor phenomenon among undergraduate music education majors. *Journal of Research in Music Education 72*(3), 229–246. https://doi.org/10.1177/00224294231207267

Neureiter, M., & Traut-Mattausch, E. (2016). An inner barrier to career development: Preconditions of the Impostor Phenomenon and consequences for career development. *Frontiers in Psychology, 7*, 48. https://doi.org/10.3389/fpsyg.2016.00048

Olmstead, K., Lampe, C., & Ellison, N. (2015). Social media and the workplace. Pew Research Center. Retrieved from https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2016/06/PI_2016.06.22_Social-Media-and-Work_FINAL.pdf

Palmquist, J. E., & Barnes, G. V. (2015). Participation in the school orchestra and String Teachers Facebook v2 group: An online community of practice. *International Journal of Community Music, 8*(1), 93–103. https://doi.org/10.1386/ijcm.8.1.93_1

Powell, S. R. (2023). *The ideology of competition in school music.* Oxford University Press.

Ramey, L. (2022). *Impostor Phenomenon responses of university-level choral faculty* (Publication No. 29254473) [Doctoral dissertation, The Florida State University]. ProQuest Dissertations and Theses Global.

Reinecke, L., & Trepte, S. (2014). Authenticity and well-being on social network sites: A two-wave longitudinal study on the effects of online authenticity and the positivity bias in SNS communication. *Computers in Human Behavior, 30*, 95–102. https://doi.org/10.1016/j.chb.2013.07.030

Rickels, D. A., & Brewer, W. D. (2017). Facebook band director's group: Member usage behaviors and perceived satisfaction for meeting professional development needs. *Journal of Music Teacher Education, 26*(3), 77–92. https://doi.org/10.1177/1057083717692380

Rinn, T. J. (2024). Online social comparison and impostor phenomenon among music education undergraduates. *Journal of Music Teacher Education.* Advance Online Publication. https://doi.org/10.1177/10570837241277781

Schau, H., & Gilly, M. C. (2003). We are what we post? Self-presentation in personal web space. *Journal of Consumer Research, 30*(3), 385–404. https://doi.org/10.1086/378616

Schneider, S. M., & Schupp, J. (2013). Individual differences in social comparison and its consequences for life satisfaction: Introducing a short scale of the Iowa-Netherlands Comparison Orientation Measure. *Social Indicators Research, 115*(2), 767–789. https://doi.org/10.1007/s11205-012-0227-1

Sciara, S., Villani, D., Di Natale, A. F., & Regalia, C. (2021). Gratitude and social media: a pilot experiment on the benefits of exposure to others' grateful interactions on Facebook. *Frontiers in Psychology, 12*, 667052. https://doi.org/10.3389/fpsyg.2021.667052

Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression, and anxiety: A systematic review. *JMIR Mental Health, 3*(4), e50. https://doi.org/10.2196/mental.5842

Sezer, O., Gino, F., & Norton, M. I. (2018). Humblebragging: A distinct-and ineffective-self-presentation strategy. *Journal of Personality and Social Psychology, 114*(1), 52–74. https://doi.org/10.1037/pspi0000108

Silvey, B., Nápoles, J., Springer, G., Montemayor, M. (2024). Perfectionism and impostor phenomenon among undergraduate music education majors [Manuscript submitted for publication].

Simon, H. A. (1971). Designing organizations for an information-rich world. In M. Greenberger (Ed.), *Computers, Communications, and the Public Interest.* Johns Hopkins Press.

Sims, W. L., & Cassidy, J. W. (2019). Impostor Phenomenon responses of early career music education faculty. *Journal of Research in Music Education, 67*(1), 45–61. https://doi.org/10.1177/0022429418812464

Sims, W. L., & Cassidy, J. W. (2020). Impostor feelings of music education graduate students. *Journal of Research in Music Education, 68*(3), 249–263. https://doi.org/10.1177/0022429420946899

Song, H., Cramer, E. M., & Park, N. (2019). Cultural differences in social comparison on Facebook. *Behaviour & Information Technology, 38*(2), 172–183. https://doi.org/10.1080/0144929x.2018.1519037

Sorenson, R. A. (2022). *The prevalence of Impostor Phenomenon among music student teachers: A mixed methods approach* (Publication No. 29064492) [Doctoral Dissertation, The Florida State University]. ProQuest Dissertations and Theses Global.

Steers, M., L. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology, 33*(8), 701–731. https://doi.org/10.1521/jscp.2014.33.8.701

Tandoc, E. C., Ferrucci, P., & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior, 43*, 139–146. https://doi.org/10.1016/j.chb.2014.10.053

U.S. Department of Education, NCfES (2023). Definitions for new race and ethnicity categories. Retrieved September 7 from https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions

Vaingankar, J. A., van Dam, R. M., Samari, E., Chang, S., Seow, E., Chua, Y. C., Luo, N., Verma, S., & Subramaniam, M. (2022). Social Media–Driven Routes to Positive Mental Health Among Youth: Qualitative Enquiry and Concept Mapping Study. *JMIR Pediatrics and Parenting, 5*(1). https://doi.org/10.2196/32758

Vergauwe, J., Wille, B., Feys, M., De Fruyt, F., & Anseel, F. (2015). Fear of being exposed: The trait-relatedness of the Impostor Phenomenon and its relevance in the work context. *Journal of Business and Psychology, 30*(3), 565–581. https://doi.org/10.1007/s10869-014-9382-5

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture, 3*(4), 206–222. https://doi.org/10.1037/ppm0000047

Wang, Y.-C., Burke, M., & Kraut, R. (2016). *Modeling self-disclosure in social networking sites.* Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing, 74–85. https:/doi.org/10.1145/2818048.2820010

Wayman, J. (2016). Choral directors Facebook group: A content analysis of social media interactions. *Missouri Journal of Research in Music Education* (53), 19–33. https://mmea.net/wp-content/uploads/2020/04/MJRME_2016_53_Full-Issue.pdf

Wheeler, L. (1966). Motivation as a determinant of upward comparison. *Journal of Experimental Social Psychology, 1,* 27–31. https://doi.org/10.1016/0022-1031(66)90062-X

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*(2), 245–271. https://doi.org/10.1037/0033-2909.90.2.245

Appendix

Table A1

ANOVA Summary Table

Model		SS	df	MS	F	p
1[a]	Regression	9703.263	1	9703.263	48.923	< .001
	Residual	27965.548	141	198.337		
	Total	37668.811	142			
2[b]	Regression	11603.850	2	5801.925	31.163	<.001
	Residual	26064.961	140	186.178		
	Total	37668.811	142			

[a] Predictors: Online upward social comparison

[b] Predictors: Online upward social comparison, online non-directional social comparison

Table A2

Coefficients Table

Model	B	SE	β	t	p	Bivariate r	Partial r
1 (Constant)	35.586	4.329		8.221	< .001		
COM-SMU[a]	2.283	.326	.508	6.995	<.001	.508	.508
2 (Constant)	27.072	4.969		5.449	<.001		
COM-SMU[a]	1.959	.332	.436	5.900	<.001	.446	.415
COM-SMND[b]	1.054	.330	.236	3.195	.002	.261	.225

[a]Online upward social comparison

[b]Online non-directional social comparison

Figure A1
COM-SM

Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly "good" or "bad" about this type of comparison, and some people do it more than others.

We would like to find out how often you compare yourself **with other choir teachers when using social media**. To do that, we would like you to indicate how much you agree with each statement below by using the following scale.

Strongly Disagree 1	Disagree 2	Moderately Disagree 3	Mildly Disagree 4	Neither Agree or Disagree 5	Mildly Agree 6	Moderately Agree 7	Agree 8	Strongly Agree 9

1. When viewing social media, I believe that I have accomplished a better career than other people have. (downward) 1 2 3 4 5 6 7 8 9

2. When viewing social media, I feel less confident about myself as a choir teacher compared to other people. (upward) 1 2 3 4 5 6 7 8 9

3. When viewing social media, I pay attention to how I do things as a choir teacher versus how others do things and felt my way was better. (downward) 1 2 3 4 5 6 7 8 9

4. When viewing social media, I conclude that I am not as well-known as a choir teacher as other choir teachers. (upward) 1 2 3 4 5 6 7 8 9

5. When viewing social media, I pay a lot of attention to how I do things as a choir teacher compared to how other choir teachers do things. (non-directional) 1 2 3 4 5 6 7 8 9

6. When viewing social media, if I want to find out how well I have done something as a choir teacher, I compare what I have done with how well others have done. (non-directional) 1 2 3 4 5 6 7 8 9