University of Texas at Arlington
MavMatrix

Music Theses | Department of Music

Spring 2024

GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING AND COMPARING THE PERCEPTIONS OF THREE AGE GROUPS

Kevin R. Merkel
University of Texas at Arlington

Follow this and additional works at: https://mavmatrix.uta.edu/music_theses

 Part of the Educational Psychology Commons, Music Education Commons, Music Pedagogy Commons, and the Other Music Commons

Recommended Citation

Merkel, Kevin R., "GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING AND COMPARING THE PERCEPTIONS OF THREE AGE GROUPS" (2024). *Music Theses*. 3.
https://mavmatrix.uta.edu/music_theses/3

This Thesis is brought to you for free and open access by the Department of Music at MavMatrix. It has been accepted for inclusion in Music Theses by an authorized administrator of MavMatrix. For more information, please contact leah.mccurdy@uta.edu, erica.rousseau@uta.edu, vanessa.garrett@uta.edu.

GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING AND COMPARING THE PERCEPTIONS OF THREE AGE GROUPS

by

Kevin Robert Merkel

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Music in Music Education at
The University of Texas at Arlington
May, 2024

Arlington, Texas

Supervising Committee:

Dr. John B. Wayman, Supervising Professor
Dr. Diane M. Lange
Dr. Megan Sarno

ABSTRACT

Gender Associations of American Band Instruments:

Exploring and Comparing the Perceptions of Three Age Groups

Kevin Robert Merkel, M.M.Ed

The University of Texas at Arlington, 2024

Supervising Professor: Dr. John B. Wayman

This collection of three related studies explored the current gender-related perceptions of American band instruments. The first study investigated adults' perceptions, as they were asked to rank instrument preferences for their hypothetical son and daughter. The second study examined the perceptions of seventh- and eighth-grade band students by allowing them to rate band instruments based on their gender perceptions. The third study investigated the perceptions and experiences of university band students related to gender norms and instruments utilizing a survey and interview process. The results provided evidence that instrument gender perceptions and stereotypes can change, and they suggest that intentional efforts can reduce the harmful effects of gender stereotypes, prejudice, and discrimination. Familiarity with trends regarding gender stereotypes is essential for band directors to know how to establish and maintain a supportive learning environment, and how they can help individuals feel welcome and comfortable to learn, regardless of their instrument choice. This awareness will provide teachers with a better understanding of how to support their students and make their classrooms more positive, safe, and inclusive.

Keywords: Band, Gender, Stereotype, Perception, Gender association, Musical instrument

Copyright © by

Kevin Robert Merkel

2024

ACKNOWLEDGEMENTS

I want to thank Dr. Wayman for his thoughtful advice, unwavering support, and consistent optimism throughout this process. His Research in Music Education course inspired me to begin conducting this research and made me feel like designing and conducting research studies was something I could realistically do. I also want to thank Dr. Lange and Dr. Sarno for agreeing to be a part of my supervising committee. In addition to having a passion for their content areas and meticulously planning engaging, thought-provoking learning activities, all of the professors I have worked with at the University of Texas at Arlington have demonstrated that they truly care about their students and are supportive in helping them develop the skills necessary to be successful. I also want to thank Dr. Bennet Cameron for helping me to become a better, more expressive musician and allowing me to see that I am capable of more than I ever imagined. My skills, knowledge, and worldview have grown exponentially during my time at this university, and I appreciate all the help and guidance I have received along the way.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

Gender plays a fundamental role in shaping the lives of children from the early stages of development and sometimes even before birth, as parents and relatives make choices regarding clothing, toys, and nursery decorations based on the child's biological sex (Patterson & Vannoy, 2023; Spencer 2021). These gendered expectations persist as children mature, continually receiving both overt and covert messages from family, schools, peers, and media (Spinner et al., 2020). However, children are not simply sponges; it's important to remember that each child is a unique individual, actively participating in their own development. Despite the constant influx of external information, each child develops the ability to interpret and respond to the messages they receive, ultimately making their own choices (Piaget, 1952). Gender is ultimately a social construct that is learned and socialized, and it is influenced by cultural norms (Patterson & Vannoy 2023; van Anders, 2015).

Scholarly discourse around the complex topics of gender and sex has changed considerably over the last 50 years. Several decades ago, society tended to think of gender as a dichotomy of male vs. female (Abeles, 1978). However, it is now more universally accepted to understand gender as a nonbinary continuum or spectrum (Diamond, 2020; Martin & Mason, 2022; Spencer, 2021; Twenge, 2023). Throughout this document, I have aimed to honor the more modern usage of the terms gender and sex, and I have used brackets to update the language of older sources that used the word sex in place of gender, while also staying true to their original quoted text.

As people develop their own understandings of gender, it is common to associate inanimate objects with gender as well. In a study by Meagher (2017), participants rated 177 inanimate objects based on their gender perceptions, and they collectively perceived objects like lipstick as being feminine, calculators as being neutral, and football as being masculine. Gender associations for objects can be unique perceptions or widely held across entire cultures. Extensive research has been conducted on gendered perceptions of children's toys, finding complex relationships between which items parents purchase, which items children request, and how gender and many other social factors influence these decisions (Blakemore & Centers, 2005; Davis Jac & Hines 2020; Marshall & Shibazaki, 2020).

Similarly, researchers from various parts of the world have found that many people perceive gender as being associated with musical instruments, and my focus is on the instruments commonly found in American band classrooms. These gender associations influence decisions about which instruments people choose to play and attitudes about what others should play (Wrape et al., 2016). This relationship between gender and musical instruments has been studied for several decades, and comprehensive reviews of the literature have been compiled by Wych (2012) and Eros (2008). Abeles and Porter (1978) were trailblazers in initiating academic discourse about instrument gender associations, conducting multiple related studies on the topic. Results from their research established a baseline for the perceptions of eight common instruments, allowing them to be arranged on a masculine/feminine continuum. The order from most feminine to most masculine was: flute, violin, clarinet, cello, saxophone, trumpet, trombone, and drums. Secondly, they found a significant relationship between adults' instrument preferences for their children and the sex [gender] of their children; adults preferred for their daughters to play "feminine" instruments and their sons to play "masculine" instruments. Prior

instrument experience had no significant impact on responses, implying that instrument gender associations were widespread and existed throughout the general population. Numerous other studies have contributed to the existing knowledge, and most have found similar results regarding specific instrument gender perceptions (Abeles, 2009; Abeles & Porter, 1978; Cooper & Burns, 2019; Cramer et al., 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Harrison & O'Neill, 2000; Marshall & Shibazaki, 2012; O'Neill & Boulton, 1996; Stronsick et al., 2017). Research has shown that most students choose to play instruments that correspond to their gender, but this is certainly not always the case.

Instrument gender associations can have harmful effects and lead to prejudice and stereotypes (Abeles & Porter, 1978; Rawlings & Espelage, 2020). Prejudice is defined as "the positive and negative evaluations of social groups and their members," and stereotypes are "beliefs and expectations associated with those groups" (Sherman et al., 2005, p. 607). These two concepts are directly linked. Stereotyping increases prejudice, and reducing prejudice is dependent on stereotype change. They are both problematic because stereotypes are often unfair and untrue, and prejudice can lead to discrimination (Brittanica, 2024). Unfortunately, stereotypes are everywhere, and this complex interrelationship explains why stereotypes can be so robust, tenacious, and long-lasting (Koch et al., 2016; Sidanius & Pratto, 1999). Moreover, a condition directly associated with these concepts is stereotype threat; it describes the situation in which there is a negative stereotype about a person's group, and he or she is concerned about being judged or treated negatively because of this stereotype (Oliver et al., 2023; Watson, 2023). Experiencing stereotype threat can have many harmful effects, such as facing criticism or persecution for going against social norms, hesitancy to even try going outside expected norms, fear of confirming negative stereotypes, underperformance, limited potential, discouragement,

and so on. Therefore, efforts to reduce stereotypes are and will continue to be essential in mitigating these damaging effects.

In recent research and public discourse, there has been an increased push toward "genderlessness" (Martin & Mason, 2022). The Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Rights movement has increased awareness of how gender is more of a spectrum rather than a dichotomy (Twenge, 2023). Additionally, it has been found that a growing number of children and adolescents describe themselves as transgender, gender fluid, or nonbinary. The latest data from the U.S. Census Bureau shows that Generation Z young adults are approximately 4 times more likely to identify as nonbinary and 23 times more likely to identify as transgender compared to the Baby Boomer generation (Diamond, 2020). Plus, a recent cover story by *National Geographic* magazine featuring the bold title, "Gender Revolution," highlighted this trend of increasing awareness and acceptance of transgender and nonbinary people (Spencer, 2021). As these societal shifts are taking place, how are they affecting views on gender roles, stereotypes, and gender associations in our band classrooms?

In an ideal world, prejudice and discrimination would cease to exist. Unfortunately, it is not always clear how to reduce specific types of these phenomena. Investigation into how to address disparities between subgroups has resulted in two prominent approaches: (1) recognizing, embracing, and amplifying differences, and (2) ignoring or deemphasizing differences to focus on commonalities (Martin & Abrahams, 2023). These two strategies are directly at odds with each other; they can either improve or exacerbate existing stereotypes and prejudices depending on the type of diversity. The awareness approach (of recognizing differences) is typically more effective with multiculturalism and race diversity because it fosters inclusion, acceptance, and the acknowledgment of different perspectives and experiences.

Conversely, research has shown that utilizing the awareness approach regarding gender has been found to have the opposite effect: compounding negative bias and increasing harmful stereotyping. Could these discrepancies be caused by the number of groups being compared? There are a plethora of different races and cultures throughout the world, but until recently, the topic of gender has been mostly viewed as a dichotomy of males vs. females. Will increasing numbers of people with nonbinary identities and gender expressions change how society views and approaches the topic of gender in and out of the classroom?

Because diversity, gender, and stereotypes are all complex topics, with conflicting ideologies on the best methods of approaching them, it is worth investigating how these concepts relate to music education. As music educators interact with students, parents, faculty, administrators, and their larger communities, special care should be taken to minimize stereotypes, discourage prejudices, and facilitate meaningful, uplifting interactions among the people around them (Conway, 2000; Garrett, 2012; Oliver et al., 2023; Rawlings & Espelage, 2020). Aside from overt communication, it is important to remember that unspoken stereotypes and gender biases can persist, sometimes even subconsciously (Meagher, 2017).

In the band classroom, gender associations with musical instruments affect the decision-making processes of students, their interactions with others, and the experiences they encounter during their time in band programs and beyond (Abeles, 2009; Abeles & Porter, 1978; Conway, 2000; Green 1997). Existing gender research seems to suggest that minimizing differences and focusing on commonalities may be the best strategy for reducing gender associations and stereotypes for musical instruments (Martin & Abrahams, 2023). However, because there are so many types of band instruments, will that be an effective method for reducing or eliminating stereotypes for all of them? Or are there other methods that could be more effective? By

investigating the current perceptions of the standard traditional musical instruments found in band programs today, it will be possible to assess how and to what extent gender associations may have changed, the impact gender associations have on band students and the people around them, and how to make classrooms more safe, positive, and inclusive.

Background

Historically, the modern gender stereotypes for instruments have not always remained consistent. In ancient civilizations, it was common for people to play all kinds of instruments (including plucked strings, woodwinds, and percussion), regardless of their sex or gender (Green, 1997). Over the centuries, though, it became significantly less common for women to be professional musicians, and they had fewer opportunities to perform. Furthermore, the selection of instruments available to women became more restricted. These trends were the result of numerous changing societal norms. In the middle ages, as newer, more intricate instruments were invented, and more complex compositional techniques like polyphony became more common, it became increasingly necessary to receive specialized training to become a professional musician. However, women were banned from attending most schools and universities, so it was extremely rare for women to receive musical training. Cyrus and Mathers (1998) noted that "given the past dominance of male composers and the prominence of exclusionary musical institutions, women of the Middle Ages and Renaissance were unlikely, perhaps even unable, to rise to positions at the top of the musical profession" (p. 101). During these eras, historical records suggest the European musical scene was largely dominated by men. Since it was expected that all the instruments of the era were to be played by men, they were all perceived as inherently masculine.

Gradually, throughout the 18th and 19th centuries, society became more accepting of female musicians (Green, 1997). These societal shifts began largely because of the contributions

of revolutionary female musicians and composers, such as Clara Schumann and Fanny Mendelssohn Hensel. During this time, it became more common for women to play piano, harp, guitar, and violin (Macleod, 1993). However, woodwind, brass, and percussion instruments were seen as inappropriate, and unbecoming for women to play. Steadily, though, seeing females playing flute, cello, and other instruments became more socially acceptable. London's prestigious Queen's Hall Orchestra made history when it became the first major orchestra to hire women in 1913 (Nayeri, 2019). By the 1940s, eighty percent of harp players and sixty-four percent of keyboard players in American symphony orchestras were female (Macleod, 1993). The flute was played predominantly by males until the 1970s, when the percentage of female flutists rose to 54% and has remained the majority since. Although many major American universities began integrating women into marching bands much earlier, Texas A&M did not allow women to be a part of the marching band until 1985 (Henkhaus, 2022). The Vienna Philharmonic Orchestra notably refused to hire female musicians until 1997 (Nayeri, 2019).

This brief overview of gender disparities in Western music demonstrates that there has been a long history of discrimination and exclusion of female musicians. Musical gender stereotyping had debilitating effects, and it "stunted women's musical growth, forcing many even of those who achieved public prominence to battle stresses created by social isolation and condescension" (Macleod, 1993, p. 308). In the grand scheme of things, it is only very recently that women have been given the same opportunity as men to choose any instrument and perform in ensembles. The level of equality and equity found in modern bands and orchestras is often taken for granted.

Beyond performance opportunities, gender stereotypes have also limited career opportunities and livelihoods. Because women were largely barred from receiving instruction

and participating in ensembles for so long, there were far fewer female music educators. In 1973, women comprised just “17% of all instrumental instructors and only 5% of all public school and college band directors” (Abeles & Porter, 1978, p. 66). Since then, female instrumental music educators have become more common, although they are still in the minority (Fitzpatrick, 2012). The most recent data from 2021 shows that 28.58% of band directors are female (Zippia, 2024).

Furthermore, research has shown that one’s choice of instrument can affect the likelihood of being hired; Abeles (2009) found that “gender associations with musical instruments have far-reaching consequences beyond the music classroom and may restrict the vocational aspirations of both female and male musicians” (p. 138). For example, one study showed that school principals viewed trumpet players as the most desirable candidates for band director positions, thereby placing candidates who played other instruments at a disadvantage (Zdzinski, 2005). A different study by Cramer et al. (2002) found that “males who played feminine instruments were perceived as less dominant and active and had less leadership skills than females playing the identical instruments” (p. 171). These findings demonstrate that gender associations and stereotypes can have serious, tangible, and lasting consequences.

Finally, when looking back on the historical context of gender norms and gender associations for instruments, it is easy to see that dramatic changes have occurred. Although some societal shifts took place over centuries, others occurred rapidly. The flute is a prime example. Before 1970, mostly males played the flute (Macleod, 1993). However, by 1978, the flute was perceived as the most feminine instrument, and it was by far the top choice that adults would want their daughters to play (Abeles & Porter, 1978). Throughout history, the many shifts regarding gender norms and instrument gender associations provide evidence that they are

certainly not set in stone. Have gender associations already changed, and can intentional initiatives bring about more equity and equality?

Present Studies

Because the original studies on instrument gender associations are now outdated, contemporary research is needed in this field. Inspired by previous research and motivated to contribute to the existing knowledge, I designed and conducted three related studies exploring the current perceptions of American band instruments. The first study investigated the perceptions and preferences of adults. Participants were asked to rank their top three instrument choices for their hypothetical sons and daughters. This has implications for the instrument selection process because adults' perceptions and preferences can influence the decision-making processes of children in their families or other children in their lives (Abeles & Porter, 1978). The second study investigated the perceptions of seventh- and eighth-grade band students by allowing them to rate band instruments on a continuum of how feminine, neutral, or masculine they perceived them to be (Abeles, 2009). The third study investigated the perceptions and experiences of university band students related to gender norms and instruments utilizing a survey and interview process (Conway, 2000).

These three studies were designed to examine instrument gender associations holistically, and they are all interrelated. Because band students usually begin in sixth grade, students in seventh and eighth grade generally still have fresh memories of the instrument selection process, and anecdotally, they have had an opportunity to acclimate to their instruments, peers, teachers, and classroom dynamics. University students typically have had considerably more time and experience with their instruments, and they have a more nuanced perspective from attending multiple schools and learning from several different music educators. The perceptions of adults

reflect the perceptions of the broader population regardless of whether they have instrumental experience, and they can influence future band students because of their perceptions. The intention behind selecting these age groups was for them to represent a cycle. Understanding the similarities and differences between these groups will allow band directors to identify emerging trends and assess areas where additional efforts are needed to minimize negative stereotypes. Additionally, these studies will provide band directors with new insight into how they can improve their classroom environments and help their students have a safer and more positive experience in their band programs.

References

Abeles, H. F., & Porter, S. Y. (1978). The sex-stereotyping of musical instruments. *Journal of Research in Music Education, 26*(2), 65-75. https://doi-org.ezproxy.uta.edu/10.2307/3344880

Abeles, H. (2009). Are musical instrument gender associations changing? *Journal of Research in Music Education, 57*(2), 127-139. https://doi-org.ezproxy.uta.edu/10.1177/0022429409335878

Blakemore, J. E. O., & Centers, R. E. (2005). Characteristics of boys' and girls' toys. *Sex roles*, *53*, 619-633. https://doi-org.ezproxy.uta.edu/10.1007/s11199-005-7729-0

Brittanica. (2024, April 12). *Stereotype*. https://www.britannica.com/dictionary/stereotype

Conway, C. (2000). Gender and musical instrument choice: A phenomenological investigation. *Bulletin of the Council for Research in Music Education*, *146*, 1-17. http://www.jstor.org/stable/40319030

Cooper, P. K., & Burns, C. (2021). Effects of stereotype content priming on fourth and fifth grade students' gender-instrument associations and future role choice. *Psychology of Music, 49*(2), 246-256. https://doi-org.ezproxy.uta.edu/10.1177/0305735619850624

Cramer, K. M., Million, E., & Perreault, L. A. (2002). Perceptions of musicians: Gender stereotypes and social role theory. *Psychology of Music, 30*(2), 164-174. https://doi-org.ezproxy.uta.edu/10.1177/0305735602302003

Cyrus, C. J., & Mather, O. C. (1998). Rereading absence: Women in Medieval and Renaissance music. *College Music Symposium*, *38*, 101-117. http://www.jstor.org/stable/40374322

Davis Jac, T. M., & Hines, M. (2020). How large are gender differences in toy preferences? A systematic review and meta-analysis of toy preference research. *Archives of Sexual Behavior, 49*(2), 373-394. https://doi.org/10.1007/s10508-019-01624-7

Delzell, J. K., & Leppla, D. A. (1992). Gender association of musical instruments and preferences of fourth-grade students for selected instruments. *Journal of Research in Music Education*, *40*(2), 93-103. https://doi.org/10.2307/3345559

Diamond, L. M. (2020). Gender fluidity and nonbinary gender identities among children and adolescents. *Child Development Perspectives, 14*(2) 110-115. https://doi-org.ezproxy.uta.edu/10.1111/cdep.12366

Eros J. (2008). Instrument selection and gender stereotypes: A review of recent literature. *Update: Applications of Research in Music Education*, 27(1), 57–64. https://doi-org.ezproxy.uta.edu/10.1177/8755123308322379

Fitzpatrick, K. R. (2013). Motherhood and the high school band director: A case study. *Bulletin of the Council for Research in Music Education, (196)*, 7-23. https://link-gale-com.ezproxy.uta.edu/apps/doc/A458644322/AONE?u=txshracd2597&sid=summon&xid=2c6f9e12

Garrett, M. L. (2012). The LGBTQ component of 21st-century music teacher training: Strategies for inclusion from the research literature. *Update: Applications of Research in Music Education, 31*(1), 55-62. https://doi-org.ezproxy.uta.edu/10.1177/8755123312458294

Griswold, P. A., & Chroback, D. A. (1981). Sex-role associations of music instruments and occupations by gender and major. *Journal of Research in Music Education*, *29*(1), 57-62. https://doi.org/10.2307/3344680

Hallam, S., Rogers, L., & Creech, A. (2008). Gender differences in musical instrument choice. *International Journal of Music Education, 26*(1), 7-19. https://doi-org.ezproxy.uta.edu/10.1177/0255761407085646

Harrison, A. C., & O'Neill, S. A. (2000). Children's gender-typed preferences for musical instruments: An intervention study. *Psychology of Music*, *28*(1), 81-97. https://doi-org.ezproxy.uta.edu/10.1177/0305735600281006

Henkhaus, L. (2022, July 27). *Title IX ushered in a time of change for Texas A&M's Corps of Cadets*. Texas A&M Today. https://today.tamu.edu/2022/07/27/title-ix-ushered-in-a-time-of-change-for-texas-ams-corps-of-cadets/

Koch A., Imhoff R., Dotsch R., Unkelbach C., Alves H. (2016). The ABC of stereotypes about groups: Agency/socioeconomic success, conservative-progressive beliefs, and communion. *Journal of Personality and Social Psychology*, 110, 675-709. http://dx.doi.org/10.1037/pspa0000046

Macleod, B. A. (1993). "Whence comes the lady tympanist?" Gender and instrumental musicians in America, 1853-1990. *Journal of Social History, 27*(2), 291-308. https://link-gale-com.ezproxy.uta.edu/apps/doc/A14903043/ITOF?u=txshracd2597&sid=bookmark-ITOF&xid=a8cdd32b

Marshall, N., & Shibazaki, K. (2020). Gender associations and musical instruments: Understanding the responses of nursery-aged children. *Educational Research*, *62*(4), 455-473. https://doi-org.ezproxy.uta.edu/10.1080/00131881.2020.1836988

Marshall, N. A., & Shibazaki, K. (2012). Instrument, gender and musical style associations in young children. *Psychology of Music, 40*(4), 494-507. https://doi-org.ezproxy.uta.edu/10.1177/0305735611408996

Martin, A., & Abrahams, M. (2023, June 27). *Rock and role: How assigning gender to inanimate objects influences us*. Stanford Graduate School of Business. https://www.gsb.stanford.edu/insights/rock-role-how-assigning-gender-inanimate-objects-influences-us

Martin, A. E., & Mason, M. F. (2022). What does it mean to be (seen as) human? The importance of gender in humanization. *Journal of Personality and Social Psychology.*, *123*(2), 292–315. https://doi.org/10.1037/pspa0000293

Meagher B. R. (2017). Judging the gender of the inanimate: Benevolent sexism and gender stereotypes guide impressions of physical objects. *British Journal of Social Psychology*, 56, 537-560. https://doi-org.ezproxy.uta.edu/10.1111/bjso.12198

Nayeri, F. (2019, December 23). *When an orchestra was no place for a woman.* The New York Times. https://www.nytimes.com/2019/12/23/arts/music/women-vienna-philharmonic.html

Oliver, A., Gomez, B. N., Milless, K. L., Godbole, M., & Good, C. (2023). Stereotype threat. In Watson, P.W.S.J., Rubie-Davies, C.M., & Ertl, B. (Eds.). *The Routledge International Handbook of Gender Beliefs, Stereotype Threat, and Teacher Expectations* (1st ed.) (pp. 81-92). Routledge. https://doi-org.ezproxy.uta.edu/10.4324/9781003275763

O'Neill, S. A., & Boulton, M. J. (1996). Boys' and girls' preferences for musical instruments: A function of gender? *Psychology of Music, 24*(2), 171-183. https://doi-org.ezproxy.uta.edu/10.1177/0305735696242009

Patterson, M., & Vannoy, M. R. (2023). Gender beliefs, gender stereotypes, and gender development. In Watson, P.W.S.J., Rubie-Davies, C.M., & Ertl, B. (Eds.). *The Routledge*

International Handbook of Gender Beliefs, Stereotype Threat, and Teacher Expectations (1st ed.) (pp. 9-20). Routledge. https://doi-org.ezproxy.uta.edu/10.4324/9781003275763

Piaget, J. (1952). *The origins of intelligence in children.* International Universities Press.

Rawlings, J. R., & Espelage, D. L. (2020). Middle school music ensemble participation, homophobic name-calling, and mental health. *Youth & Society, 52*(7), 1238-1258. https://doi-org.ezproxy.uta.edu/10.1177/0044118X19866071

Sherman, J. W., Stroessner, S. J., Conrey, F. R., & Azam, O. A. (2005). Prejudice and Stereotype Maintenance Processes: Attention, Attribution, and Individuation. *Journal of Personality and Social Psychology.*, *89*(4), 607–622. https://doi.org/10.1037/0022-3514.89.4.607

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. Cambridge University Press.

Spencer, L. G. (2021). Pink and blue in a yellow box: National Geographic's special issue on gender identity. *The Quarterly Journal of Speech*, *107*(3), 261-283. https://doi.org/10.1080/00335630.2021.1945134

Spinner, L., Cameron, L., & Ferguson, H. J. (2020). Children's and parents' looking preferences to gender-typed objects: Evidence from eye tracking. *Journal of Experimental Child Psychology*, *199*, https://doi-org.ezproxy.uta.edu/10.1016/j.jecp.2020.104892

Stronsick, L. M., Tuft, S. E., Incera, S., & McLennan, C. T. (2018). Masculine harps and feminine horns: Timbre and pitch level influence gender ratings of musical instruments. *Psychology of Music, 46*(6), 896-912. https://doi-org.ezproxy.uta.edu/10.1177/0305735617734629

Twenge, J. M. (2023, May 1). How Gen Z changed its views on gender. *Time*. https://time.com/6275663/generation-z-gender-identity/

Watson, P. W. S. J. (2023). Stereotype threat research in real-world gendered contexts. In Watson, P.W.S.J., Rubie-Davies, C.M., & Ertl, B. (Eds.). *The Routledge International Handbook of Gender Beliefs, Stereotype Threat, and Teacher Expectations* (1st ed.) (pp. 93-104). Routledge. https://doi-org.ezproxy.uta.edu/10.4324/9781003275763

Wrape, E. R., Dittloff, A. L., & Callahan, J. L. (2016). Gender and musical instrument stereotypes in middle school children: Have trends changed? *Update: Applications of Research in Music Education, 34*(3), 40-47. https://doi.org/10.1177/8755123314564255

Wych G. M. F. (2012). Gender and instrument associations, stereotypes, and stratification: A literature review. *Update: Applications of Research in Music Education*, 30(2), 22-31. https://doi-org.ezproxy.uta.edu/10.1177/8755123312437049

van Anders, S. (2015). Beyond sexual orientation: Integrating gender/sex and diverse sexualities via sexual configuration theory. *Archives of Sexual Behavior, 44,* 1177-1213. https://doi-org.ezproxy.uta.edu/10.1007/s10508-015-0490-8

Zdzinski, S. F. (2005). A response to Elizabeth Gould, "Nomadic turns: Epistemology, experience, and women university band directors." *Philosophy of Music Education Review, 13*, 195-199. https://www.jstor.org/stable/40495513

Zippia. (2024, April 5). Band director demographics and statistics in the US. Retrieved May 11, 2024, from https://www.zippia.com/band-director-jobs/demographics/

CHAPTER 2

GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING THE PERCEPTIONS AND PREFERENCES OF ADULTS

Research into gender associations with musical instruments in American culture goes back nearly half a century. In 1978, Abeles and Porter noted that associating certain instruments with a specific gender creates stereotypes. They found that these stereotypes "constrict the behavior and thus the opportunities of individuals," and they ultimately limit the "range of musical experiences available to male and female musicians" (p. 65). Stereotypes of any kind are a problem, especially when generalizations are made that have nothing to do with whether individuals are capable of certain tasks.

Many factors can influence instrument stereotypes, such as society, culture, family, and the media (Conway, 2000). Student participants from multiple studies have shared that their parents had at least some level of influence on how they selected their primary instrument (Conway, 2000; Fortney et al., 1993; Sinsabaugh, 2005). In his most recent article on the subject, Abeles recommended "further studies that focus on parents' influence on children's instrument choices" (2009, p. 127). Since then, there has been limited research on parental influence in the instrument selection process.

Stereotypes can create and exacerbate social pressures that influence how people make decisions and how they interact with others. Green (1997) observed that "both boys and girls tended to restrict themselves or find themselves restricted to certain musical activities for fear of intruding into the other sex's [gender's] territory" (p. 244). This means that children's behavior and the behaviors of their peers and adults around them are likely to be influenced by the fear of

going against gender stereotypes. According to Conway (2000) and Sinsabaugh (2005), peer pressure related to gender stereotypes constrains students' full participation in many types of musical experiences. Additionally, gender stereotypes can lead to many other negative outcomes, including bullying, harassment, and poor mental health (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

The association of gender with musical instruments profoundly impacts how people perceive and experience music (Abeles & Porter, 1978, Green, 1997). Considering instruments masculine or feminine creates stereotypes that indicate it is more acceptable for males or females to play certain instruments and less acceptable for them to play others. This means that some people may not end up playing the instrument that they are most interested in or the instrument that they have the greatest aptitude for, because societal pressures suggest they are not allowed to play that instrument. These gender stereotypes can be experienced both consciously and subconsciously, and they are often communicated implicitly and explicitly.

Hallam et al. (2008) conducted a wide-scale investigation into the proportions of males and females who play each instrument. They found that greater numbers of females played flute, oboe, clarinet, and bassoon, while greater numbers of males played tuba, baritone/euphonium, trombone, trumpet, and percussion. They found the French horn and saxophone to be the most equal. Both instruments were within 1% of a 50/50 split between the number of males and females who played them. These proportions are generally aligned with gender associations observed in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992).

Although some research has been conducted to investigate how gender is associated with instruments and possible explanations for why gender associations exist, there are several gaps in the existing knowledge. Most studies only examined gender associations of the most common

instruments, including ones not found in the band classroom (Abeles, 2009; Abeles & Porter, 1978; Cooper & Burns, 2019; Cramer, Million, & Perreault, 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Harrison & O'Neill, 2000; Marshall & Shibazaki, 2012; O'Neill & Boulton, 1996; Stronsick, Tuft, Incera, & McLennan, 2017). The only study that focused on American band instruments took place 31 years ago (Fortney, Boyle, & DeCarbo, 1993). Furthermore, only one study has been done regarding the perceptions and preferences of adults, and that study took place 46 years ago (Abeles & Porter, 1978). In the decades since these two studies, considerable changes have occurred in American society, especially with the feminist movement for equality in the workforce, and the Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Rights movement (Abeles, 2009; Diamond, 2020; Twenge, 2023). As a result, significant changes may have occurred in how Americans perceive different instruments, as well as the percentages of males and females who play each instrument.

Present Study

To what extent are parents fueling the gender stereotyping of musical instruments? This quantitative research study investigated the gender associations of traditional American band instruments, focusing on how parental influence impacts this phenomenon. This study examined which instruments adults preferred for their hypothetical sons and daughters who were about to enroll in band classes. This study was loosely based on a 1978 study by Abeles and Porter, in which adult participants preferred significantly different instruments based on the sex [gender] of the child and their preferences aligned with gender stereotypes. However, that study only involved a limited number of instruments, including instruments not found in the band classroom. The instruments included in that study were flute, clarinet, saxophone, trumpet, trombone, drums, violin, and cello. Much could be learned by updating the list of choices to the

11 traditional American band instruments commonly found in contemporary public school band ensembles. These instruments are flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, euphonium, tuba, and percussion (Fortney et al., 1993; Wrape, Dittloff, & Callahan, 2016). Significant changes have occurred in the 46 years since the original study. Evolving societal views on gender could translate to perceptions of band instruments, and research has shown that a growing number of children and adolescents describe themselves as transgender, gender fluid, or nonbinary (Diamond, 2020; Twenge, 2023).

Music educators play an important role in their classrooms, schools, and communities (Bergee & Demorest, 2003; Pope & Mick, 2018; Schmidt, 2020; Shin & Ryan, 2017). By gaining insight into the current state of instrument perceptions, music educators can reflect on how they address gender stereotypes, reevaluate their recruiting processes, and assess how they can improve students' experience in their program. Becoming more aware of stereotypes will provide teachers with a better understanding of how to support their students and make their classrooms more positive, safe, and inclusive (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

Primary Research Questions:

1. Will participants choose the same instruments in the same order for their hypothetical son compared to the instruments they choose for their hypothetical daughter?
2. How do these rankings compare with how instruments ranked in the 1978 study by Abeles and Porter?

Additional Research Questions:

3. Which instruments are most popular and least popular (i.e., which instruments are selected most often and least often regardless of the hypothetical child's gender)?

4. What are the rankings of the most selected instrument choices for daughters, and what are the rankings of the most selected instrument choices for sons?
5. Is there a difference in the data between participants who have experience playing an instrument compared to those who do not?
6. Is there a difference in the data between participants who have experience playing an instrument that matches their gender stereotype compared to those who have experience playing an instrument that does not match their gender stereotype?
7. Is there a difference in the data between participants with children compared to those without children?

Methodology

Participants

The target population for this study was adults (18 years of age or older). To be included in the study, participants acknowledged that they were over the age of 18, and they voluntarily answered all research questions. A total of 184 participants ($N = 184$) qualified and completed the requirements for inclusion. Approval was obtained from the Institutional Review Board (IRB) before any potential subjects were invited to participate. The study was approved as minimal risk, as seen in Chapter 2 Appendix A: IRB Approval Letter.

Survey

This study utilized an electronic survey created on QuestionPro. The Abeles and Porter study (1978) inspired the general design, but several modern updates were added. The previous study utilized a paper survey that featured fewer instrument choices and did not include pictures. However, the present study's design incorporated color pictures of the 11 band instruments to help participants identify each instrument. After providing informed consent, participants were

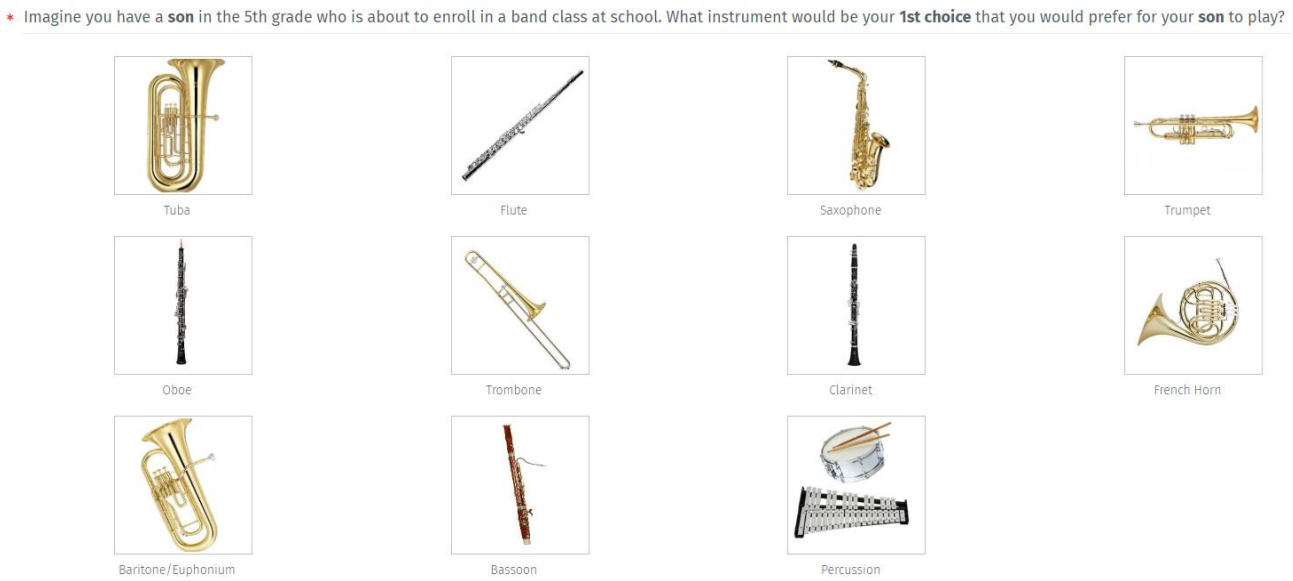
able to complete the survey on their electronic devices voluntarily. Smartphones, tablets, laptops, and desktop computers were all compatible with the survey's design. The data was collected anonymously, and no individually identifiable information was collected.

The survey collected two types of data. The first type of data collected was information pertinent to answering the primary and secondary research questions for this study. The second set of data collected reflected demographic information. The full list of survey questions can be found in Chapter 2 Appendix A: Survey Questions.

The research questions were designed to explore the instrument preferences of adults. There were three questions about a hypothetical daughter and three questions about a hypothetical son. These two blocks of questions, based on the gender of the hypothetical child, were programmed to appear in a random order. This was done to increase reliability and validity, as randomization "removes discrepancies in the method of collecting data and eliminates bias" (Bhat, n.d.). The following is a sample question from the survey: "Imagine you have a **daughter** in the 5th grade who is about to enroll in a band class at school. What instrument would be your **1st choice** that you would prefer for your **daughter** to play?" The next two questions were about their second and third choices for their daughters. To increase data reliability, the instruments appeared in random orders in each of the six related questions. Additionally, bold text was used to emphasize the crucial differences between questions that appear to be similar, as seen in Figure 1.

Figure 1.

Sample Question from Adult Survey



Participants were able to choose from 11 instrument options with corresponding color pictures for each instrument. These instruments were flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, baritone/euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016). If the block of questions about their hypothetical daughter randomly appeared first, they could then rank their top three instrument preferences for their hypothetical son second, and vice versa. After answering a question, and due to the selection of an instrument, the next two questions successively had one fewer option remaining. This means that participants could not choose the same instrument more than once for the same child. After they ranked their top three choices for the first child, the 11 options were refreshed for the next set of questions about the other child.

The second type of data collected was related to demographic information, and this was collected in the final portion of the survey. Participants were asked if they described themselves

as men, women, or in some other way (Keeter & Brown, 2024). Next, they were asked what instrument(s) they play (if any) and to explain their instrument experience. Finally, they were asked whether they have children in real life and how many. The full list of

The survey was pilot-tested for troubleshooting before the research study officially began. Minor adjustments were made to improve the flow of the survey experience and make it more visually appealing, e.g., the final three questions about demographics were grouped into one block. This was also when the programming logic was added so that only 10 options would appear for the participants' second choice, and 9 options would appear for their third choice. The pilot test responses yielded an estimated completion time of 5 minutes or less. After receiving approval from the IRB to begin the research study, the pilot-testing data was cleared on QuestionPro to create a blank slate.

Procedures

The survey was geared toward three major populations: my personal/professional contacts, the contacts in my social media network, and members of specific Facebook groups. The survey remained active until either a total of 250 participants was reached or the end of a three-week active window. I emailed or texted a survey link to personal and professional contacts, along with a brief script to introduce the survey. I also posted the script and survey link on my personal Facebook page and made the post public so it could be shared by others. To further increase the outreach, I contacted the administrators of multiple Facebook groups to request permission to share the survey with their members. Three administrators permitted me to share the survey. Their groups were catered towards music educators, instrumental educators from a southwestern state, and members of a large award-winning community chorus. Upon completion, 184 completed survey responses were received ($N = 184$).

The survey responses were then analyzed to answer the primary research questions: would participants choose different instruments for their hypothetical sons and daughters, and would these choices align with gender stereotypes? Additionally, the data was analyzed for trends and comparisons based on demographic information collected in the survey (gender, instrument experience, and parental status). Would there be differences between how these demographic groups responded?

Results

The electronic survey was viewed 1420 times. There were 203 total responses, but 19 of them were incomplete. Therefore, the 184 completed responses ($N = 184$) were used for this study. There was a 90.64% completion rate for participants who started the survey.

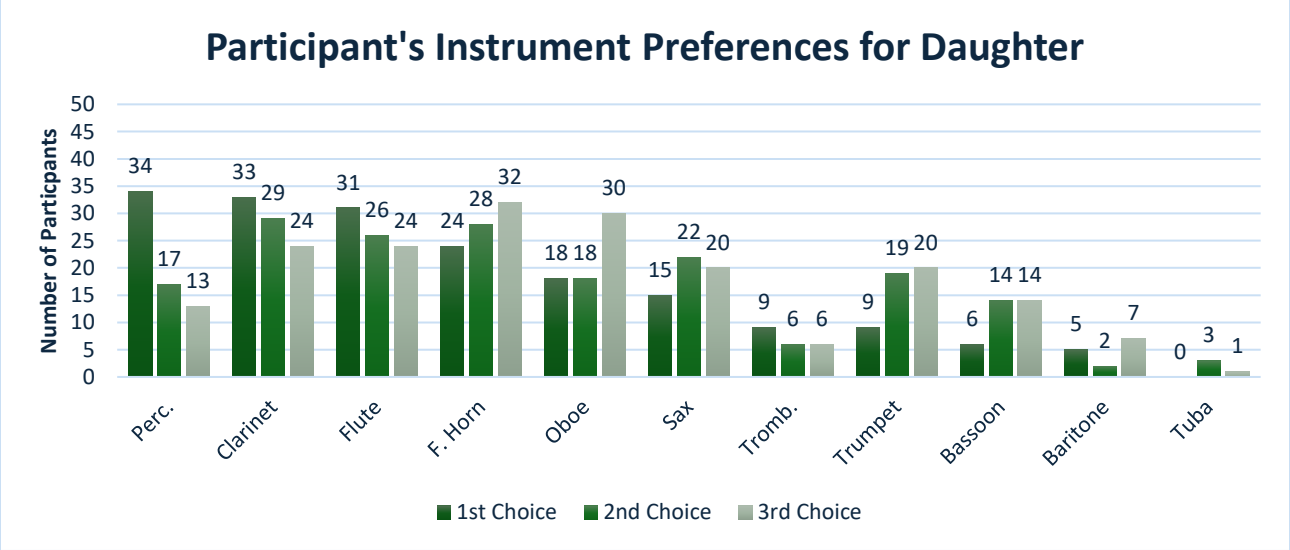
There were statistically significant differences between which instruments participants preferred for their daughters and sons. Chi-square tests of independence were performed to examine the relation between the gender of the child and the instruments parents preferred for them. Four significant relationships were found. The relation between these variables was significant when comparing the gender of the child with first-choice instruments, (X^2 (90, $N = 184$) = 287.69, $p = <.001$), when comparing the gender of the child with second-choice instruments, (X^2 (100, $N = 184$) = 169.88, $p = <.001$), when comparing the gender of the child with third-choice instruments (X^2 (100, $N = 184$) = 127.56, $p = .033$), and when comparing the gender of the child with overall instrument preferences (X^2 (100, $N = 184$) = 395.43, $p = <.001$).

When participants were asked their first choice in what they would prefer for their hypothetical daughter to play, the most popular choice was percussion (18.48%), followed by clarinet (17.93%), and flute (16.85%). When participants were asked their second choice in what

they would prefer for their hypothetical daughter to play, the most popular choice was clarinet (15.76%), French horn (15.22%), and flute (14.13%). When selecting their third choice, the most popular selections were French horn (17.39%), oboe (16.30%), and clarinet (13.04%). The rankings of each instrument selected for daughters in the first, second, and third rounds can be found in Figure 2.

Figure 2.

Adult Participants' Ranked Instrument Preferences for Their Hypothetical Daughter

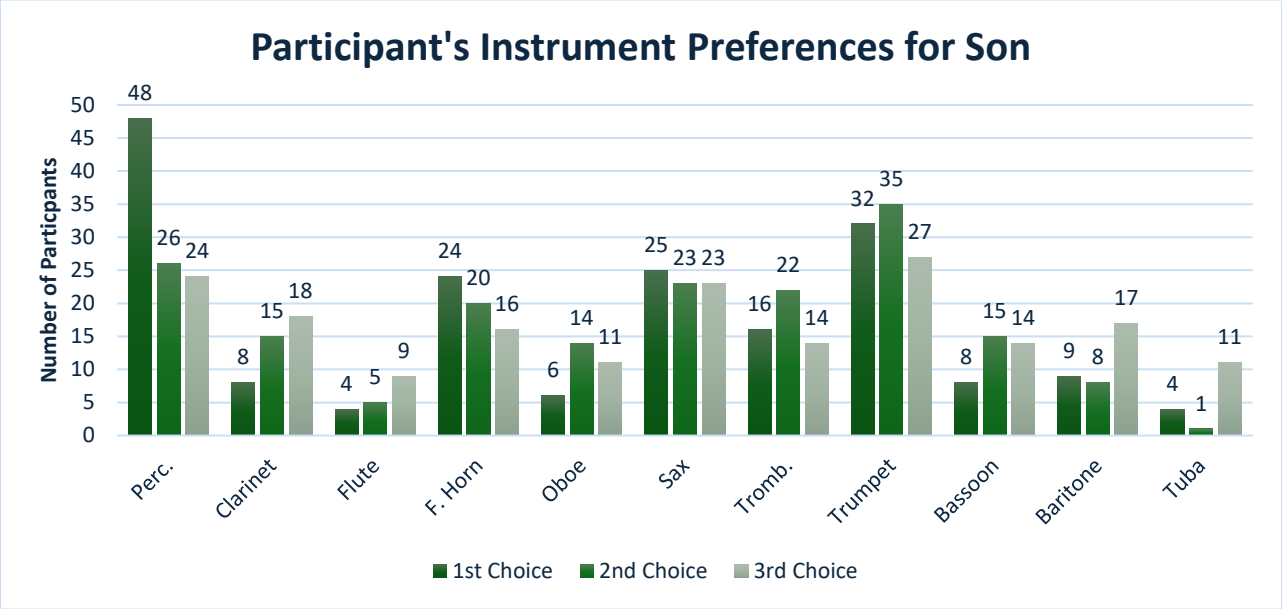


When participants were asked their first choice in what they would prefer for their hypothetical son to play, the most popular choice was percussion (26.09%), followed by trumpet (17.39%), and saxophone (13.59%). After participants selected the preferred instrument for their child, it was then removed for the next questions, resulting in fewer options as the process continued. When participants were asked their second choice in what they would prefer for their hypothetical son to play, the most popular choice was trumpet (19.02%), followed by percussion (14.13%), and saxophone (12.50%). When selecting their third choice, the most popular choices

again were trumpet (14.67%), percussion (13.04%), and saxophone (12.50%). The rankings of each instrument selected for sons in the first, second, and third rounds can be found in Figure 3.

Figure 3.

Adult Participants' Ranked Instrument Preferences for Their Hypothetical Son.



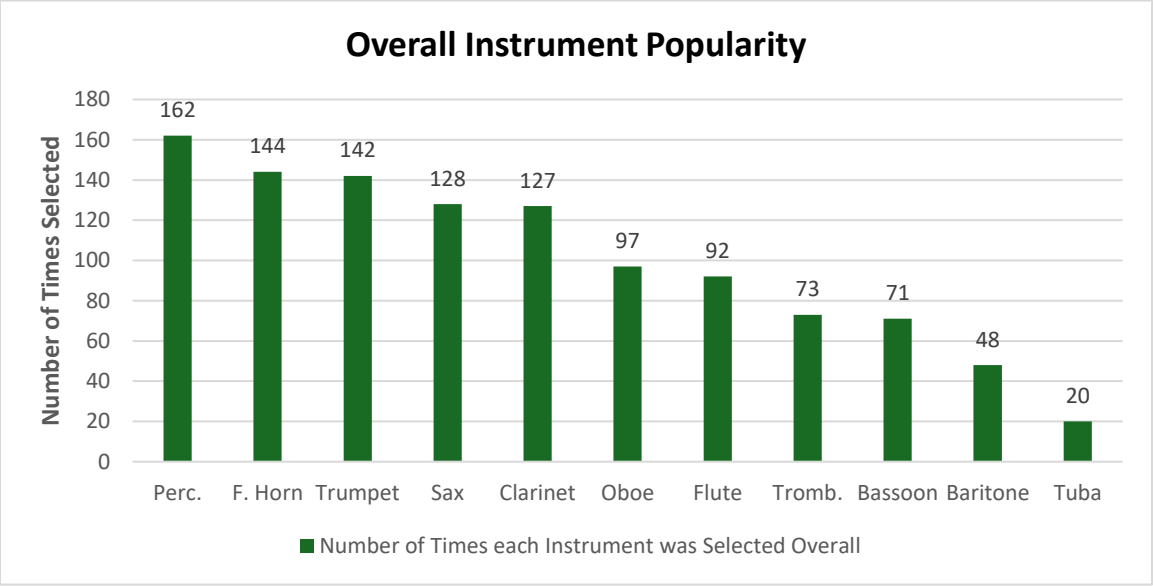
To find out which instruments were most popular overall among participants, the selection counts for each of the six questions were added together. These totals show how many times each instrument was selected as being a top-3 choice for sons and/or daughters. This is true because an instrument could only be selected one time per child. Since there were 184 participants ($N = 184$), the six questions yielded a total of 1104 instrument selections.

Overall, percussion was the most popular instrument that participants preferred for their children to learn, regardless of their child's gender. As shown in Figure 4, it was selected 162 times, the most overall. The second most popular instrument was the French horn, which was selected 144 times. The third most popular instrument was the trumpet, which was selected 142

times. Saxophone placed fourth (128), and clarinet was fifth (127). Then came oboe (97), flute (92), trombone (73), bassoon (71), and baritone/euphonium (48). The least popular instrument overall was the tuba, which was selected only 20 times out of 1104 opportunities.

Figure 4

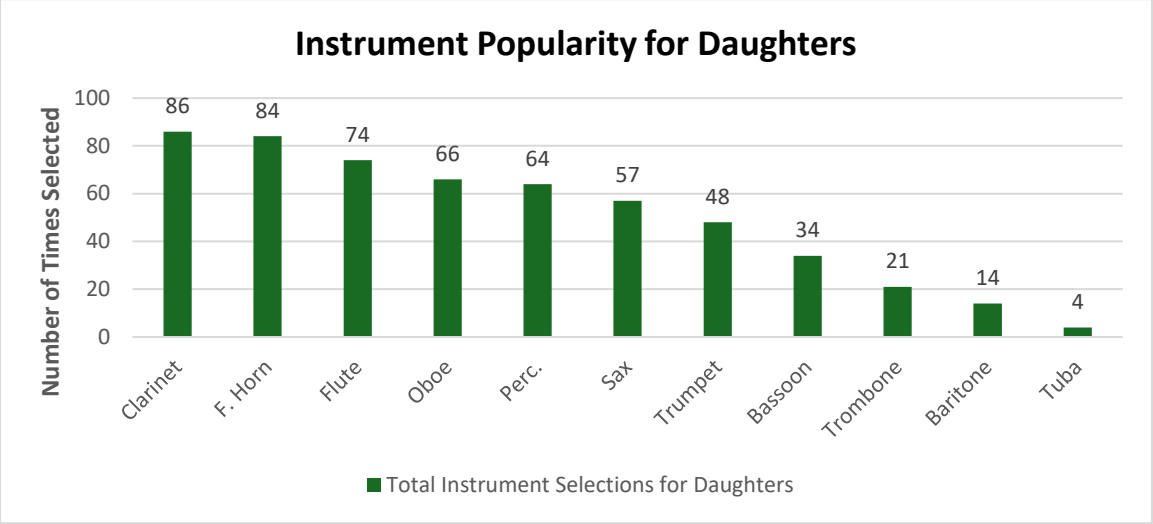
The Number of Times Each Instrument Was Selected for Sons and Daughters



Next, the results were analyzed for trends based on the gender of the child. Participants made a total of 552 selections for each hypothetical child. When looking at the popularity of instruments for daughters specifically, the frequency of selections appeared in the following order: clarinet (86), French horn (84), flute (74), oboe (66), percussion (64), saxophone (57), trumpet (48), bassoon (34), trombone (21), baritone/euphonium (14), and tuba (4). These counts for the total instrument selections for daughters can be found in Figure 5.

Figure 5

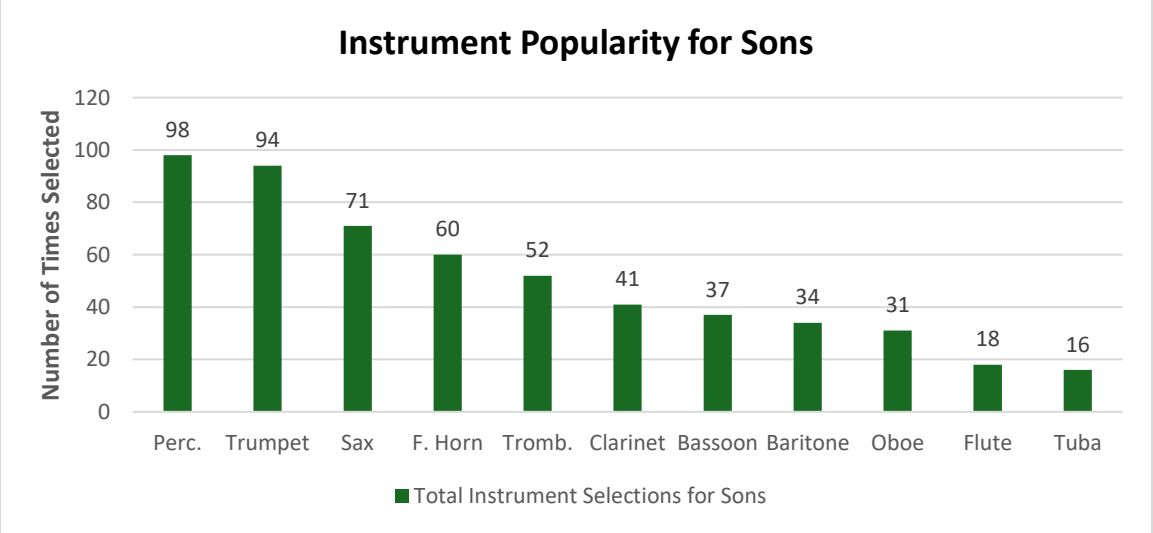
The Number of Times Each Instrument Was Selected for Daughters



The popularity of instruments selected for sons was very different. The frequency of selections appeared in the following order: percussion (98), trumpet (94), saxophone (71), French horn (60), trombone (52), clarinet (41), bassoon (37), baritone/euphonium (34), oboe (31), flute (18), and tuba (16). These counts can be found in Figure 6.

Figure 6

The Number of Times Each Instrument Was Selected for Sons



If the most preferred instrument rankings were so different, how many participants selected the same instruments for each child? Out of the total survey population ($N = 184$), only 25 selected the same three instruments in the same order for their hypothetical daughter and son ($n = 25$). There were 16 participants ($n = 16$) who selected the same first two instruments for each child, but their third choice differed. There were 33 participants ($n = 33$) who selected the same first instrument for each child, but their second choices were different. This means that 74 out of 184 (40.22%) selected the same first-choice instrument for both of their hypothetical children. In contrast, 110 participants (59.78%) selected different instruments as their first choice for each. Moreover, the 25 who selected the same three instruments in the same order ($n = 25$) chose significantly different first-choice instruments for their daughter (X^2 (9, $N = 184$) = 18.64, $p = .028$) and first-choice instruments for their sons (X^2 (10, $N = 184$) = 28.21, $p = .002$) compared to the rest of the survey population ($n = 159$).

Next, the data was analyzed based on the participants' demographic characteristics. Participants, the hypothetical parents, were asked if they described themselves as a man ($n = 64$), a woman ($n = 118$), or in some other way ($n = 2$). A chi-square test of independence showed that there was no significant association between participants' gender and instruments selected for daughters (X^2 (18, $N = 184$) = 15.11, $p = .655$) or sons (X^2 (20, $N = 184$) = 19.85, $p = .468$). However, there were noteworthy trends between how women and men responded. Women were more likely to choose percussion and French horn as their first choice for daughters, and saxophone, percussion, and clarinet as their first choice for sons. Men were more likely to choose trombone and oboe as their first choice for daughters, and tuba, oboe, and bassoon as their first choice for sons.

Participants were also asked what instrument(s) they knew how to play. There were 35 participants (n = 35) who did not report any instrumental experience (i.e., they were exclusively vocalists or wrote "none"). This indicates that 80.98% of participants had prior instrumental experience (n = 149). A chi-square test of independence showed that there was no significant association between participants' instrument experience and the instruments they selected for daughters (X^2 (9, N = 184) = 10.70, p = .297) or sons (X^2 (10, N = 184) = 6.355, p = .785). The results of this study indicated, however, a trend that participants with no prior instrumental experience (n = 35) were more likely to prefer percussion, clarinet, flute, and saxophone as a first choice for their daughters, and more likely to prefer percussion and trombone as a first choice for their sons.

Then, the data was analyzed based on gender stereotypes. Participants were classified into three groups: those who played a band instrument that matched their gender stereotype, those who played a band instrument that went against their gender stereotype, or neither. Previous research by Hallam et al. (2008) was used to determine which instruments were considered stereotypically feminine, masculine, or neutral. There were 57 participants (n = 57) who played a band instrument that matched their gender stereotype. Only 14 participants (n = 14) played a band instrument that went against their gender stereotype. The remainder (n = 113) had no instrument experience, played an instrument not included in this study, or played a gender-neutral band instrument. Gender stereotype was not a significant factor in how participants responded. A chi-square test of independence showed that there was no significant association between gender stereotypes and instruments selected for daughters (X^2 (9, n = 71) = 9.31, p = .409) or sons (X^2 (9, n = 71) = 8.75, p = .461).

Finally, the data was analyzed based on parental status. There were 76 respondents (41.30%) who indicated that they did not have children (n = 76). The remaining 58.70% had one or more children (n = 108). A chi-square test of independence showed that there was no significant association between parental status and instruments selected for daughters (X^2 (9, N = 184) = 5.96, p = .744) or sons (X^2 (9, N = 184) = 10.06, p = .435). However, there were trends that participants who had children (n = 108) were more likely to choose trombone and French horn as the first choice for their daughters, and percussion and French horn as the first choice for their sons. There were also trends that participants who did not have children (n = 76) were more likely to choose trumpet, French horn, and oboe as the first choice for their daughters, and trumpet and oboe as the first choice for their sons.

Discussion

The electronic survey utilized in this study was a modern update to the Abeles and Porter (1978) survey design. One notable aspect featured in both designs was the ability for participants to rank preferences. This highlights the possibility that the parent's first choice may not be what the child ends up playing. There are many factors involved that contribute to determining what instrument a child plays in their band class. A child might have a particular interest or desire to play a certain instrument. This may be due to siblings, family members, or role models who play or speak highly of the instrument. It could also be a result of portrayals of the instrument in the media or prior experiences of seeing and hearing instrumentalists that made a strong impression. A child's peers can also influence the decision in many ways. They might want to play the same instrument as a friend, or they might be afraid to choose an instrument others would not approve of. Likewise, parents have a strong influence on the decision. For example, a parent may

encourage their child to play the same instrument as them. Moreover, a family's financial constraints could severely limit options.

The first research question of this study was to discover whether participants would choose different instruments for their hypothetical sons and daughters. The results show that a large majority of participants (86.41%) chose a different combination of instrument preferences for one child compared to the other. Only 13.59% of participants chose the same three instruments in the same order for both their son and daughter. This finding indicates that most adults would prefer their daughters to play different instruments than their sons, and vice versa.

One difference between the current study and the Abeles and Porter study (1978) was the opportunity for every participant to share their preferences for both a hypothetical son and daughter. The original study utilized two different paper surveys where half asked about a hypothetical son and the other half asked about a hypothetical daughter; participants received their surveys randomly so they didn't know which child they would be asked about. The current study's electronic format allowed the order of questions to be randomized. Therefore, participants could still randomly be asked to rank preferences for either their son or daughter first, and then rank preferences for the other child afterward. This allowed for a direct comparison of what instruments the individual participants would prefer for their children, as opposed to comparing results aggregately as the original study did. Intriguingly, both methods found statistically significant differences in how respondents preferred different instruments based on the child's sex [gender].

The fact that a large majority of participants (86.41%) chose different combinations of instruments for their sons and daughters suggests that people believe that an individual's sex and/or gender has a connection with what instrument that person should play. This aligns with

previous research. Abeles (1978) concluded that “the association of gender with musical instruments [does] exist in the general population,” and that “parents may influence their children to choose certain instruments, depending on the sex [gender] of the child” (pp. 73-74). Although 46 years have passed since the original study, most adults still prefer that their sons and daughters play different instruments. This general preference has remained the same even after numerous societal shifts in recent decades toward equal opportunity and the fact that “gender equality is accepted as appropriate and desirable in most Western cultures” (Hallam et al., 2008). This could be because they imagine drastic differences in physical characteristics between their hypothetical sons and daughters, i.e., certain instruments being too big or heavy for their daughter (Bazan, 2005). Maybe they have never seen musicians of a particular gender playing specific instruments before (Harrison & O’Neill, 2000). Perhaps they are being influenced by societal pressures or expectations and are afraid they would be embarrassed for their child to play an instrument that goes against gender stereotypes (Conway, 2000; Green, 1997). Another possibility is that they want their child to fit in with their classmates and avoid bullying (Garrett, 2012; Rawlings & Espelage, 2020). Clearly, there are many possible explanations for why adults might prefer different instruments for their sons and daughters.

The second primary research question was to discover how the rankings of instrument preference in this study compare with rankings found in previous research. The Abeles and Porter study (1978) found that adults strongly preferred flute and clarinet for their hypothetical daughters and preferred trumpet, drums, and trombone for their hypothetical sons. However, the saxophone was more gender-neutral, as it “produced nonsignificant differences at the .05 level due to the sex [gender] of the child” (p. 67). It is important to remember that those six instruments were the only band instruments included in that study. Although the current study

expanded the roster to the 11 most common band instruments found in American band programs today, the present study found comparable results. The flute and clarinet were preferred significantly more for daughters, while trumpet, drums (percussion), and trombone were preferred significantly more for sons.

The results of this study indicate that gender stereotypes are still affecting the decision-making processes of many people. As evidence, five out of six top choices for sons and daughters fit within the gender stereotypes observed in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). Percussion was selected most frequently as the first choice instrument for sons. The trumpet was selected most frequently as the second and third choice for sons. Both instruments have consistently been perceived as masculine and more commonly played by males in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). Participants selected the clarinet and flute as two of the three top choices for daughters; both instruments have consistently been perceived as feminine and more commonly played by females.

The particular result of this study that I find most astonishing is that percussion was the most selected first choice for daughters. This profoundly goes against the gender stereotypes observed in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). This is especially surprising because several previous studies found that drums or percussion were perceived as being the most masculine of all instruments (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992; Marshall & Shibazaki, 2012). The fact that parents would prefer for their daughter to play percussion suggests that gender associations with musical instruments can change, and this is evidence that the process has begun for percussion.

One possible explanation for this is the pedagogical shift in how educators approach percussion, which has been taking place over the last several decades. In the past, many percussionists were called “drummers” because all they did was play the drums, and the world of percussion was almost entirely dominated by men (Nutt, 2023). Since the 1950s, mallet instruments have been gradually incorporated into American percussion curriculums, and it has become increasingly common to see female percussionists and percussion composers. Nowadays, percussionists are expected to be more diverse in their skill sets by developing proficiency with several types of instruments, and the “snare drum, timpani, and marimba are emphasized as foundational instruments” (Smith & Davis, 2022, p. 28). This stresses the importance and necessity of teaching various techniques and skills to form a well-rounded percussion section.

Percussion includes a variety of pitched and unpitched instruments with different sizes, shapes, and timbres. It is possible this could create the perception that percussion is versatile, dynamic, and diverse. A logical extension of that would be the perception that it could potentially be a desirable choice for anyone. Despite the participants’ remarkable first preference for daughters, percussion was still selected drastically more as a first choice for sons ($n = 48$) compared to those who selected it as the first choice for daughters ($n = 34$). Furthermore, when considering the data overall, far more participants included percussion as one of their top three preferences for sons ($n = 98$) compared to those who included percussion in their top three for daughters ($n = 64$).

There were several surprising survey responses. Some participants chose the same three instruments for both children but in different orders. For example, one selected trombone, percussion, and baritone for their daughter, but they selected baritone, percussion, and trombone

for their son. This suggests that those three instruments may be the participants' favorites. However, they indicated they would prefer their daughter to play the trombone and their son to play the baritone. A handful of others also chose the same top three preferences for both son and daughter but in different orders of preference.

One notable participant selected the flute as their first preference for both son and daughter. In the blank for explaining instrumental experience, they declared, "None. I picked the quietest one for my kid to learn." This is the only participant who shared their thoughts about how and why they made their selections. Curiously, this participant chose clarinet second and oboe third for their daughter and then reversed the order (choosing oboe and then clarinet) for their son.

For participants who already have children, it is interesting to speculate how their children may have influenced their survey responses. For example, one participant with two children selected percussion, saxophone, and oboe for the daughter and selected bassoon, saxophone, and oboe for their son. For some reason, the second and third preferences are the same, but there is a preference for two different instruments as the first choice for the daughter and son. A participant who already has two children may have chosen two instruments that their children already play. However, with the data collected, there is no way to know whether their children already have instrumental experience, and how that may have impacted their choice.

While some parents may firmly insist that their child begins learning a particular instrument at school, the band directors have the final say on how many students are allowed in each section. This makes it possible to have one or more full ensembles with an appropriate balance of instruments. Many band directors have some form of audition or instrument try-out event, where prospective students receive feedback on which instruments would be the best fit

(Bazan, 2005). This process could include aptitude tests, timbre preference tests, rhythm/coordination exercises for potential percussionists, making sounds on mouthpieces or reeds for wind instruments, and so on. Band directors also look for physical characteristics that could hamper student success. For example, if a student's hands are too small to cover the holes on a bassoon, or if their arms are too short to fully extend the trombone slide, then it would certainly lead to frustration. If students can start with an instrument that they can be successful with, they will be more likely to continue participating in and enjoying musical activities in the future.

Conclusion

This study investigated the current gender associations of traditional American band instruments, focusing on how parental influence impacts this phenomenon. A survey was utilized to find out which instruments adults preferred for their hypothetical sons and daughters who were about to enroll in band classes. There were three major takeaways. First, the results demonstrated that adults today still prefer significantly different instruments based on the gender of the child. A significant majority of participants chose different combinations of instruments that they preferred for each child. This shows that the child's gender is an important factor in determining what instrument the adult would prefer for them to play. Second, the results of this study suggest that gender stereotypes are still affecting the decision-making processes of many people. Five out of six of the most preferred instruments aligned with gender stereotypes. The final major takeaway was that percussion was selected more than any other instrument as the number-one choice for daughters to play. This stunningly goes against gender stereotypes that have been observed for the past several decades. The evidence from this study demonstrates that

gender associations with musical instruments can indeed change, and it provides new hope in an ongoing effort to lessen their harmful effects.

Although several demographic details were examined for possible trends in how participants responded to the survey, one limitation is that it was not an exhaustive list. Other demographic data, such as age, ethnicity, education level, household income, and so on, could be analyzed in future studies to determine whether connections exist between those demographic details and how participants perceive and prefer instruments. Another limitation is that this study was exclusively focused on the 11 most common American band instruments. While this study has been useful and insightful for band directors, the same general methodology could be implemented again in the future to study how adults perceive other instruments. For example, it could be adapted exclusively for orchestral instruments, expanded to include both band and orchestral instruments, or increased in scope beyond that to include other popular instruments and musical activities, such as piano, guitar, singing, and so on.

Further research is needed to understand why adults prefer specific instruments for their sons and daughters. A qualitative research study is recommended to allow adult participants to explain why they choose specific instruments, how they decide to rank their choices, and why they are choosing the same or different instruments based on the child's gender. There is more to learn about how prevalent various outside factors are and which ones play the biggest role in influencing how band students select their primary instrument. Additionally, further research is warranted to discover the percentages of males and females who select various instruments today. This would allow music educators as a collective to assess their efforts in lessening gender stereotypes.

References

Abeles, H. F., & Porter, S. Y. (1978). The sex-stereotyping of musical instruments. *Journal of Research in Music Education, 26*(2), 65-75. https://doi-org.ezproxy.uta.edu/10.2307/3344880

Abeles, H. (2009). Are musical instrument gender associations changing? *Journal of Research in Music Education, 57*(2), 127-139. https://doi-org.ezproxy.uta.edu/10.1177/0022429409335878

Bazan, D. E. (2005). An investigation of the instrument selection processes used by directors of the beginning band. *Contributions to Music Education*, *32*(1), 9-31. http://www.jstor.org/stable/24127233

Bergee, M. J., Demorest, S. M. (2003). Developing tomorrow's music teachers today. *Music Educators Journal, 89*(4), 17-20. https://doi.org/10.2307/3399899

Bhat, A. (n.d.). *Eliminate order bias in surveys with question randomization.* QuestionPro. Retrieved March 24, 2024, from https://www.questionpro.com/blog/eliminate-order-bias-in-surveys-with-question-randomization/

Conway, C. (2000). Gender and musical instrument choice: A phenomenological investigation. *Bulletin of the Council for Research in Music Education*, *146*, 1-17. http://www.jstor.org/stable/40319030

Cooper, P. K., & Burns, C. (2021). Effects of stereotype content priming on fourth and fifth grade students' gender-instrument associations and future role choice. *Psychology of Music, 49*(2), 246-256. https://doi-org.ezproxy.uta.edu/10.1177/0305735619850624

Cramer, K. M., Million, E., & Perreault, L. A. (2002). Perceptions of musicians: Gender stereotypes and social role theory. *Psychology of Music, 30*(2), 164-174. https://doi-org.ezproxy.uta.edu/10.1177/0305735602302003

Delzell, J. K., & Leppla, D. A. (1992). Gender association of musical instruments and preferences of fourth-grade students for selected instruments. *Journal of Research in Music Education*, *40*(2), 93-103. https://doi.org/10.2307/3345559

Diamond, L. M. (2020). Gender fluidity and nonbinary gender identities among children and adolescents. *Child Development Perspectives, 14*(2) 110-115. https://doi-org.ezproxy.uta.edu/10.1111/cdep.12366

Fortney, P. M., Boyle, J. D., & DeCarbo, N. J. (1993). A study of middle school band students' instrument choices. *Journal of Research in Music Education*, *41*(1), 28-39. https://doi.org/10.2307/3345477

Garrett, M. L. (2012). The LGBTQ component of 21st-century music teacher training: Strategies for inclusion from the research literature. *Update: Applications of Research in Music Education, 31*(1), 55-62. https://doi-org.ezproxy.uta.edu/10.1177/8755123312458294

Griswold, P. A., & Chroback, D. A. (1981). Sex-role associations of music instruments and occupations by gender and major. *Journal of Research in Music Education*, *29*(1), 57-62. https://doi.org/10.2307/3344680

Hallam, S., Rogers, L., & Creech, A. (2008). Gender differences in musical instrument choice. *International Journal of Music Education, 26*(1), 7-19. https://doi-org.ezproxy.uta.edu/10.1177/0255761407085646

Harrison, A. C., & O'Neill, S. A. (2000). Children's gender-typed preferences for musical instruments: An intervention study. *Psychology of Music*, *28*(1), 81-97. https://doi-org.ezproxy.uta.edu/10.1177/0305735600281006

Keeter, S. & Brown, A. (2024, February 12). *Who are you? The art and science of measuring identity*. Pew Research Center. https://www.pewresearch.org/methods/2024/02/12/who-are-you-the-art-and-science-of-measuring-identity/

Marshall, N. A., & Shibazaki, K. (2012). Instrument, gender and musical style associations in young children. *Psychology of Music, 40*(4), 494-507. https://doi-org.ezproxy.uta.edu/10.1177/0305735611408996

Nutt, H. J. (2023). Paul Price and American percussion practices during the 'Golden Age' of higher education. *Journal of Historical Research in Music Education.* Advance online publication. https://doi.org/10.1177/15366006231188386

O'Neill, S. A., & Boulton, M. J. (1996). Boys' and girls' preferences for musical instruments: A function of gender? *Psychology of Music, 24*(2), 171-183. https://doi-org.ezproxy.uta.edu/10.1177/0305735696242009

Pope, D. A., & Mick, J. P. (2018). How positive festival results impact a music program. *Music Educators Journal, 105*(1), 33-38. https://doi.org/10.1177/0027432118792071

Rawlings, J. R., & Espelage, D. L. (2020). Middle school music ensemble participation, homophobic name-calling, and mental health. *Youth & Society, 52*(7), 1238-1258. https://doi-org.ezproxy.uta.edu/10.1177/0044118X19866071

Schmidt, P. (2020). Making policy work for us: Changing the way music educators look at policy. *Music Educators Journal, 107*(1), 20-23. https://doi.org/10.1177/0027432120945121

Shin, H., & Ryan, A. M. (2017). Friend influence on early adolescent disruptive behavior in the classroom: Teacher emotional support matters. *Developmental Psychology, 53*(1), 114-125. https://doi.org/10.1037/dev00002500

Sinsabaugh, K. (2005). *Understanding students who cross over gender stereotypes in musical instrument selection* (Order No. 3175728). Available from ProQuest Dissertations & Theses Global. (305012691). https://login.ezproxy.uta.edu/login?url=https://www.proquest.com/dissertations-theses/understanding-students-who-cross-over-gender/docview/305012691/se-2

Smith, G. D., & Davis, V. W. (2022). A critical examination of percussion and drums in the collegiate curriculum. *Bulletin of the Council for Research in Music Education*, *(231)*, 25-40. https://link-gale-com.ezproxy.uta.edu/apps/doc/A757022660/AONE?u=txshracd2597&sid=summon&xid=66aec7f8

Stronsick, L. M., Tuft, S. E., Incera, S., & McLennan, C. T. (2018). Masculine harps and feminine horns: Timbre and pitch level influence gender ratings of musical instruments. *Psychology of Music, 46*(6), 896-912. https://doi-org.ezproxy.uta.edu/10.1177/0305735617734629

Twenge, J. M. (2023, May 1). How Gen Z changed its views on gender. *Time*. https://time.com/6275663/generation-z-gender-identity/

Wrape, E. R., Dittloff, A. L., & Callahan, J. L. (2016). Gender and musical instrument stereotypes in middle school children: Have trends changed? *Update: Applications of Research in Music Education, 34*(3), 40-47. https://doi.org/10.1177/8755123314564255

Chapter 2 Appendix A: IRB Approval Letter

UNIVERSITY OF TEXAS ARLINGTON | OFFICE OF RESEARCH ADMINISTRATION
REGULATORY SERVICES

12/4/2023

IRB Approval of Minimal Risk (MR) Protocol

PI: Kevin Merkel
Faculty Advisor: John Wayman
Department: Music
IRB Protocol #:2024-0079
Study Title: *Gender Associations of American Band Instruments: Exploring the Perceptions and Preferences of Adults*
Effective Approval: 12/4/2023

Protocol Details

- Original Protocol Approval Date: 12/4/2023

The IRB has approved the above referenced submission in accordance with applicable regulations and/or UTA's IRB Standard Operating Procedures. The IRB team reviewed and approved this non-federally funded, non-FDA regulated protocol in accordance with the UTA IRB Internal Operating Procedures. The study is approved as Minimal Risk.

Principal Investigator and Faculty Advisor Responsibilities

All personnel conducting human subject research must comply with UTA's IRB Standard Operating Procedures and RA-PO4, Statement of Principles and Policies Regarding Human Subjects in Research. Important items for PIs and Faculty Advisors are as follows:

- **Notify Regulatory Services of proposed, new, or changing funding source**
- Fulfill research oversight responsibilities, IV.F and IV.G.
- Obtain approval prior to initiating changes in research or personnel, IX.B.
- Report Serious Adverse Events (SAEs) and Unanticipated Problems (UPs), IX.C.
- Fulfill Continuing Review requirements, if applicable, IX.A.
- Protect human subject data (XV.) and maintain records (XXI.C.).
- Maintain HSP (3 years), GCP (3 years), and RCR (4 years) training as applicable.

Chapter 2 Appendix B: Survey Questions

1. Imagine you have a daughter in the 5th grade who is about to enroll in a band class at school. What instrument would be your 1st choice that you would prefer for your daughter to play?

2. What instrument would be your 2nd choice that you would prefer for your daughter to play?

3. What instrument would be your 3rd choice that you would prefer for your daughter to play?

4. Imagine you have a son in the 5th grade who is about to enroll in a band class at school. What instrument would be your 1st choice that you would prefer for your son to play?

5. What instrument would be your 2nd choice that you would prefer for your son to play?

6. What instrument would be your 3rd choice that you would prefer for your son to play?

7. Do you describe yourself as a man, a woman, or in some other way?
    - A man
    - A woman
    - Other

8. What musical instrument(s) do you know how to play? Please explain your experience, or write "none." _____

    _____

9. Are you the parent/guardian of any children?
    - No
    - 1 child
    - 2 children
    - 3 children
    - 4 children
    - 5 children
    - 6 children
    - 7 children or more

Note: Participants could choose from 11 instrument options with corresponding color pictures for each instrument, appearing in a random order in each question. These instruments were flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, baritone/euphonium, tuba, and percussion. After answering a question, and due to the selection of an instrument, the next two questions successively had one fewer option remaining. This means that participants could not choose the same instrument more than once for the same child. After they ranked their top three choices for the first child, the 11 options were refreshed for the next set of questions about the other child. Also, the two blocks of questions based on the gender of the hypothetical child (1-3 and 4-6) were programmed to appear in a random order. In other words, if the block of questions about their hypothetical son randomly appeared first, they could then rank their top three instrument preferences for their hypothetical daughter second, and vice versa.

CHAPTER 3

GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING THE PERCEPTIONS OF SEVENTH- AND EIGHTH-GRADE BAND STUDENTS

Over the last several decades, researchers have agreed that pervasive stereotypes exist regarding the musical instrument selection process and attitudes about musician gender (Conway, 2000; Delzell & Leppla, 1992; Hallam, Rogers, & Creech, 2008; O'Neill & Boulton, 1996; Wrape, Dittloff, & Callahan, 2016). Many factors can influence instrument stereotypes, such as society, culture, family, and the media (Conway, 2000). Stereotypes of any kind are a problem, especially when generalizations are made that have nothing to do with whether individuals are capable of certain tasks. Furthermore, stereotypes can create and exacerbate social pressures that influence how people make decisions and how they interact with others. Abeles and Porter (1978) found that these stereotypes "constrict the behavior and thus the opportunities of individuals," and they ultimately limit the "range of musical experiences available to male and female musicians" (p. 65). Similarly, Green (1997) observed that "both boys and girls tended to restrict themselves or find themselves restricted to certain musical activities for fear of intruding into the other sex's [gender's] territory" (p. 244). This means that children's behavior and the behaviors of their peers and adults around them are likely to be influenced by the fear of going against gender stereotypes. According to Conway (2000) and Sinsabaugh (2005), peer pressure related to gender stereotypes constrains students' full participation in many types of musical experiences. Additionally, gender stereotypes can lead to many other negative outcomes, including bullying, harassment, and poor mental health (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

The association of gender with musical instruments profoundly impacts how people perceive and experience music (Abeles & Porter, 1978; Green, 1997). Considering instruments masculine or feminine creates stereotypes that indicate it is more acceptable for males or females to play certain instruments and less acceptable for them to play others. This means that some people may not end up playing the instrument that they are most interested in or the instrument that they have the greatest aptitude for, because societal pressures suggest they are not allowed to play that instrument. These gender stereotypes can be experienced both consciously and subconsciously, and they are often communicated implicitly and explicitly. Instrument gender stereotypes can influence the beginner instrument selection process, student retention/attrition in music programs, and the eventual gender composition of musical ensembles at all levels, including professional ensembles (Wrape et al., 2016).

Hallam et al. (2008) conducted a wide-scale investigation into the proportions of males and females who play each instrument. They found that greater numbers of females played flute, oboe, clarinet, and bassoon, while greater numbers of males played tuba, baritone/euphonium, trombone, trumpet, and percussion. They found the French horn and saxophone to be the most equal. Both instruments were within 1% of a 50/50 split between the number of males and females who played them. These proportions are generally aligned with gender associations observed in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992).

One prominent study focused on American band instruments 31 years ago (Fortney, Boyle, & DeCarbo, 1993). In the decades since then, considerable changes have occurred in American society, especially with the feminist movement for equality in the workforce, and the Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Rights movement (Abeles, 2009; Diamond, 2020; Twenge, 2023). As a result, significant changes may have occurred in how

Americans perceive different instruments, as well as the percentages of males and females who play each instrument.

Present Study

This quantitative research study investigated the gender associations of traditional American band instruments, focusing on the perceptions of seventh- and eighth-grade band students. This study utilized a survey in which students from two schools in two different school districts rated band instruments in terms of how masculine or feminine they perceived them to be (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). Although there have been previous studies on this subject, there are several gaps in the existing knowledge. Most studies only examined gender associations of a limited number of instruments represented in today's ensembles and included instruments not found in the band classroom (Abeles, 2009; Abeles & Porter, 1978; Cooper & Burns, 2019; Cramer, Million, & Perreault, 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Harrison & O'Neill, 2000; Marshall & Shibazaki, 2012; O'Neill & Boulton, 1996; Stronsick, Tuft, Incera, & McLennan, 2017). Therefore, the list of instruments for this study was updated to the 11 traditional American band instruments commonly found in contemporary public school band ensembles. These instruments are flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, baritone/euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016).

Significant changes have occurred in the 46 years since the original study on instrument gender associations (Abeles & Porter, 1978). Research has shown that a growing number of children and adolescents describe themselves as transgender, gender fluid, or nonbinary (Diamond, 2020; Twenge, 2023), and evolving societal views on gender could translate to perceptions of band instruments. Data from this study, including analysis of demographic details

(Fortney et al., 1993), made it possible to find trends in how different groups perceive this phenomenon.

Music educators play an important role in their classrooms, schools, and communities (Bergee & Demorest, 2003; Pope & Mick, 2018; Schmidt, 2020; Shin & Ryan, 2017). By gaining insight into the perceptions of middle school band students, music educators can reflect on how they address gender stereotypes, reevaluate their recruiting processes, and assess how they can improve students' experience in their program. Becoming more aware of stereotypes will provide teachers with a better understanding of how to support their students and make their classrooms more positive, safe, and inclusive (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

Research Questions:

1. What are the perceived gender associations of band instruments now, and to what extent are different band instruments perceived as masculine or feminine?
2. How have perceived gender associations of band instruments changed from previous studies (Abeles & Porter, 1978; Delzell & Leppla, 1992; Abeles, 2009)?

Additional Research Questions:

3. Are there significant differences in how demographic subpopulations perceived instrument gender associations?
4. What are the percentages of males and females playing instruments that match their gender stereotype or playing instruments that do not?
5. How have the proportions of males and females playing specific band instruments changed compared to the findings by Fortney et al. (1993)?

Methodology

Participants

The target population for this study was seventh- and eighth-grade band students who were enrolled in the top two band classes at two participating schools. These schools were in different school districts within the same metropolitan area in the southwestern area of the United States. School A was a large suburban school serving grades 6-8 with approximately 900 students enrolled. The minority enrollment was 81%, and 68% of students were economically disadvantaged. The other participating school (School B) was in a large city setting, serving grades 7-8, with an enrollment of approximately 825 students. This school's minority enrollment was 56%, and 45% of students were economically disadvantaged.

Both schools had at least two full band classes and multiple classes for beginners. However, the target population for this study was only the seventh- and eighth-grade students enrolled in the top two band classes. Band students are usually placed into each class by audition. The "top band" is typically comprised of the students who are the most technically proficient with their instruments in the band program. The "second band" meets during a different class period and is comprised of students who are typically less proficient with their instruments. This helps with differentiating instruction between the two classes, allowing more students to work within their zone of proximal development (Vygotsky, 1978). In other words, each band can learn and perform music that is appropriately challenging and engaging to match their overall skill level. These two classes have names like "Wind Ensemble," "Symphonic Band," and/or "Concert Band." Other band classes offered at the school (beyond these two) were not included in this study.

Approval was obtained from the Institutional Review Board (IRB) before any potential subjects were invited to participate. The study was approved as minimal risk, as seen in Chapter 3 Appendix A: IRB Approval Letter. There were five criteria for determining whether potential participants could be included in this study. Participants were included in the study if: (1) they were enrolled in one of the top two band classes at the participating school, (2) they were currently in seventh or eighth grade, (3) they were in attendance the day the survey was being conducted, (4) they and their parents provided consent/assent (they did not opt-out), and (5) they completed the survey. Only students enrolled in the top two band classes were participating in the survey, so any students in the classroom who were not enrolled did not do the survey. Only the survey responses from seventh- or eighth-grade students were included in this research study. The total enrollment of the four participating classes was 130 students. A total of 118 participants (N = 118) qualified and voluntarily completed the requirements to be included in this study.

Survey

This study utilized a paper survey to collect two types of data. The first type of data collected was responses to the primary research questions. The second set of data collected reflected demographic information. The research questions were designed to explore the current perceived gender associations of band instruments. To what extent are specific band instruments perceived as masculine or feminine, and how have perceived gender associations of band instruments changed from previous studies?

This study combined elements from previous studies, while also expanding them, to gain more insight into contemporary American band classes (Abeles 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). In the previous studies, participants were presented with a list of instrument pairings and were asked to compare which instrument was more masculine than the

other. However, there are two limitations to that format. First, requiring participants to choose one or the other limits their ability to say to what extent the two options are different. Second, they are unable to voice a neutral opinion. As with gender identity, some people may feel that a particular instrument is "*both* male and female, *neither* male nor female, somewhere between male and female, or fluid over time" (Diamond, 2020, p. 110). Therefore, a Likert Scale with a neutral point of 0 was utilized, as seen in Figure 1.

Figure 1

Likert Scale Depicting the Continuum of Feminine to Masculine

Feminine Neutral Masculine

5 4 3 2 1 0 1 2 3 4 5

A number line normally has negative numbers to the left of 0 and positive numbers to the right. However, if participants were to see negative numbers on one side, they might interpret that side as being "worse" than the other. Therefore, the Likert Scale had positive numbers on both sides so there was no bias presented to participants, as seen in Figure 1. Participants used the Likert Scale to communicate how masculine, neutral, or feminine they perceived the 11 standard band instruments to be. These instruments were flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016). Pictures of each instrument were provided, as can be seen in Chapter 3 Appendix B: Middle School Band Survey.

Research has shown that randomization of questions can improve validity and reliability because it "removes discrepancies in the method of collecting data and eliminates bias" (Bhat, n.d.). Although true randomization of questions can be achieved in an electronic format, this was a paper survey. Therefore, the instruments on the survey were intentionally arranged in the

following order to seem random: saxophone, flute, trombone, French horn, oboe, tuba, percussion, trumpet, clarinet, baritone/euphonium, and bassoon. The saxophone was listed first because previous study populations perceived it as relatively gender-neutral (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). The flute was listed second as a direct contrast to the saxophone because populations from previous studies perceived it as being less gender-neutral (Abeles, 2009; Abeles & Porter, 1978; Conway, 2000; Cramer et al., 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Hallam et al., 2008; Marshall & Shibazaki, 2011; O'Neill & Boulton, 1996). The other instruments were arranged in this order to mix up instrument families and general pitch ranges. The intention was to encourage participants to think critically about their perception of each instrument.

The second type of data collected was demographic data. Participants wrote their grade level, what instrument they played, and circled male or female. They were also asked if they have a parent/guardian who plays an instrument, with an opportunity to explain which instrument(s) their caregiver(s) play.

To classify participants' responses about what instrument they or their family members play, instruments directly related to the 11 instrument categories were coded together. For example, piccolo was grouped with flute, bass clarinet was grouped with clarinet, cornet was grouped with trumpet, and bass trombone was grouped with trombone. All types of saxophones were combined, including soprano, alto, tenor, and baritone. This allowed for analysis based on similar instruments compared to others. If participants shared that their parents/guardians play instruments outside the scope of this study (e.g., piano, guitar, violin, singing, and so on), these responses were included in the broader category of parents/guardians having musical experience, as opposed to those who do not.

The survey was printed on white paper, with pictures printed in color. Two survey versions were printed for each school, with only one small difference. The school's name appeared on the top right corner in two different colors, with the main school color representing the top band, and black representing the second band. This coding allowed for greater integrity during data processing because individual survey pages could be physically tracked and sorted.

Procedures

First, I contacted multiple band directors I knew from prior personal and professional connections to invite them and their bands to participate in this study. The two particular band directors (of the bands featured in this study) immediately responded with interest and willingness to participate. One band director was female, and the other was male. After receiving confirmation from the band directors, I contacted the principals to inform them of my intentions, seek approval for a passive consent process, and inquire about any specific protocols to follow to get approval to conduct a research study involving students in their district. Both principals approved of the research methodology and gave their permission for me to visit with the classes and conduct the survey.

The band directors at each school were asked about pertinent details for their top two band classes, including which class was which, the name of each ensemble, and the times they met. This was necessary for scheduling times to visit each school to conduct the survey. They were also asked how many students were enrolled in their top two band classes. Totaling these numbers allowed me to calculate the maximum number of participants. I anticipated at least 50% participation in the study to achieve “a good rate of return” (Phillips, 2008, p. 156). After scheduling times, I sent an informational email draft to the participating band directors. They were instructed to copy/paste it into an email to the parents/guardians of the target population

(seventh- and eighth-grade students in the top two band classes at their school). In this message, the details of the study were explained, including the opt-out process for how they could exclude their child's responses from being included. The parents/guardians could express their passive assent by choosing not to opt-out. This email was sent out after the IRB (Institutional Review Board) approval process was completed so parents had time to read and respond appropriately. This occurred between 6-7 days in advance of the classroom survey. If any parents/guardians chose to exclude their child's responses, those completed surveys would stay with the band director. However, no parents or guardians chose to opt-out.

Each school's top two band classes did the survey one day during their band class period. After coordinating with band directors, this happened at agreed-upon dates and times, either at the beginning or the end of the regular class periods. The process took approximately 15 minutes of class time. On the day of the survey, I passed out two pieces of paper to each participant: a page that explained the consent process and a survey page. I read the instruction prompt aloud. The students were informed that this assignment would not affect their grades in any way. Then, the participants completed the survey. Students who were absent on the day of the survey unfortunately did not have an opportunity to participate.

Because the survey was a classroom assignment, all students enrolled in the class completed it. However, the child participants could choose whether their responses would be included in the study. They could express their passive consent by completing the survey. Alternatively, participants could express if they wanted their responses to be excluded from the study by circling the first letter of their name. They could still change their mind to opt back in by erasing the circle or writing their name again. When the class was done with the assignment, they turned in their papers (the survey and the consent information) according to their normal

classroom routine for turning in work. The participants' names were used to verify consent/assent for participants and to differentiate which surveys did or did not have consent/assent to be included. After the verification process was complete, the surveys that were allowed to be included in the study were completely de-identified by marking out the names with a permanent marker so there was no longer any personally identifiable information. In the unlikely event that any participants in the band classroom were not in seventh or eighth grade, their responses were to be excluded. However, all responses were from students who indicated they were in either seventh or eighth grade.

The paper surveys completed by study participants were scanned and stored electronically. When they were scanned, they were grouped by class and saved as separate files. The electronic copies of the completed surveys were emailed to the relevant band directors for their records, i.e., each director received the responses from their two classes. The survey responses were then analyzed to answer the research questions.

Results

This study investigated how seventh- and eighth-grade band students perceived gender associations of musical instruments. The top two band classes at two schools were invited to participate in the study. There were 130 students enrolled in these classes, and 120 were present when the survey was conducted. All parents and guardians provided consent for their children to participate. However, one student from each school chose to have their responses excluded. Therefore, 118 participants ($N = 118$) qualified and voluntarily completed the requirements to be included in this study. This was a participation rate of 90.77%.

The survey collected data regarding several demographic characteristics of the study population ($N = 118$). There were 67 participants from School A ($n = 67$) and 51 from School B

(n = 51). The top band classes had 72 participants (n = 72), and the second band classes had 46 participants (n = 46). For grade level, 84 participants were in eighth grade (n = 84), and 34 were in seventh grade (n = 34). When they were asked to circle male or female, 78 participants self-identified as male (n = 78), and 40 self-identified as female (n = 40).

The following are the numbers of participants who played each instrument: flute (n = 9), oboe (n = 6), clarinet (n = 17), saxophone (n = 18), bassoon (n = 3), trumpet (n = 17), French horn (n = 8), trombone (n = 13), baritone/euphonium (n = 6), tuba (n = 10), and percussion (n = 9). The remaining two participants declined to write their main instrument (n = 2). A chi-square test of independence was performed to evaluate the relationship between the gender of participants and the main instrument they played. The relationship between these variables was significant, χ^2 (10, N = 116) = 32.30, p < .001. The significantly different proportions of females and males who played each instrument can be found in Table 1. The instrument columns have been organized according to these proportions; the instruments with the highest percentage of female players appear on the left side, and the ones with the highest percentage of male players appear on the right side.

Table 1

The Counts and Percentages of Females and Males Who Played Each Instrument

	Flute	Oboe	Clarinet	F. Horn	Sax	Tromb.	Trumpet	Perc.	Tuba	Bassoon	Baritone
Female	7	4	11	4	7	3	2	1	1	0	0
Female %	77.78	66.67	64.71	50.00	38.89	23.08	11.76	11.11	10.00	0.00	0.00
Male	2	2	6	4	11	10	15	8	9	3	6
Male %	22.22	33.33	35.29	50.00	61.11	76.92	88.24	88.89	90.00	100.00	100.00

In the survey, participants circled a number on each Likert scale corresponding to how feminine, neutral, or masculine they perceived each instrument. The instruments included in the

survey were flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, baritone/euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016). As stated previously, a number line normally has negative numbers to the left of 0 and positive numbers to the right. However, if participants were to see negative numbers on one side, they might interpret that side as being "worse" than the other. Therefore, the Likert Scale had positive numbers on both sides so there was no bias presented to participants, as previously displayed in Figure 1. When processing data, the aggregate results for each instrument ended up being a mix of "feminine" numbers, zeros, and "masculine" numbers. For this study's purposes, one side was computed as negative numbers and the other as positive. This allowed greater clarification of data examination. The means, medians, modes, and standard deviation of how the participants rated each instrument can be found in Table 2. The instrument columns have been arranged by means with the most feminine perceptions on the left side, and the most masculine perceptions on the right side. Three individual surveys were missing a rating for one instrument (but they included ratings for the other 10 instruments). This is why saxophone, trumpet, and baritone only had 117 ratings.

Table 2

How Participants Rated Band Instruments in Terms of Femininity and Masculinity

	Flute	Clarinet	Oboe	F. Horn	Sax	Bassoon	Perc.	Trumpet	Tromb.	Baritone	Tuba
N (Valid)	118	118	118	118	117	118	118	117	118	117	118
Missing	0	0	0	0	1	0	0	1	0	1	0
Mean	-2.81	-1.94	-1.40	.00	.50	.59	1.50	1.69	2.16	2.62	3.76
Median	-3.00	-2.00	-1.50	.00	.00	.00	1.00	2.00	2.00	3.00	4.00
Mode	-3	0	0	0	0	0	0	0	3	3	5
Std. Dev.	2.268	2.169	2.113	2.226	2.083	2.089	2.003	1.783	1.890	1.716	1.652

Note. This table portrays feminine perceptions as negative numbers and masculine perceptions as positive numbers.

Next, the data was analyzed to compare how different subpopulations rated the instruments. Independent samples *t*-tests were conducted to compare how participants rated instruments at each school. There were significant differences in how the participants at School A rated trombone, oboe, saxophone, and percussion compared to the participants at School B, as seen in Table 3. This means that the participants at School A collectively perceived trombone, oboe, and saxophone as significantly more feminine, and they perceived percussion as significantly more masculine than School B. The ratings for the other seven instruments were not significantly different.

Table 3

Independent Samples T-Tests Comparing Instrument Ratings by School

	School A	School B	Calculating *p* value
Trombone	(M = 1.67, SD = 1.95)	(M = 2.80, SD = 1.61)	$t(116) = 3.36$, $p = .001$
Oboe	(M = -1.81, SD = 2.13)	(M = -0.86, SD = 1.98)	$t(116) = 2.45$, $p = .016$
Saxophone	(M = 0.12, SD = 1.86)	(M = 1.02, SD = 2.27)	$t(115) = 2.36$, $p = .020$
Percussion	(M = 1.82, SD = 2.07)	(M = 1.08, SD = 1.85)	$t(116) = -2.02$, $p = .046$

The next characteristic analyzed was the top band vs. the second band. Independent samples *t*-tests were conducted to compare how participants rated instruments based on class. There were significant differences in how the participants in top bands rated tuba, trombone, French horn, and trumpet compared to the participants in second bands, as seen in Table 4. This means that participants who were in the top bands at their schools perceived tuba as significantly more masculine, and they perceived trombone, French horn, and trumpet as significantly more

feminine compared to the participants who were in the second bands. The ratings for the other seven instruments were not significantly different.

Table 4

Independent Samples T-Tests Comparing Instrument Ratings by Top Bands vs. Second Bands

	Top Bands	Second Bands	Calculating *p* value
Tuba	(*M* = 4.07, *SD* = 1.18)	(*M* = 3.28, *SD* = 2.17)	*t*(116) = 2.58, *p* = .011
Trombone	(*M* = 1.83, *SD* = 1.91)	(*M* = 2.67, *SD* = 1.77)	*t*(116) = -2.40, *p* = .018
French horn	(*M* = -0.37, *SD* = 2.17)	(*M* = 0.59, *SD* = 2.21)	*t*(116) = -2.33, *p* = .021
trumpet	(*M* = 1.40, *SD* = 1.54)	(*M* = 2.16, *SD* = 2.04)	*t*(115) = 3.36, *p* = .026

Independent samples *t*-tests were conducted to compare how participants rated instruments based on grade level. No significant differences were found in how seventh graders rated instruments compared to eighth graders. One trend showed that percussion was perceived as more masculine by seventh graders (M = 1.97, SD = 2.30) compared to eighth graders (M = 1.31, SD = 1.85), *t*(116) = 1.64, p = .105.

Independent samples *t*-tests were conducted to compare how participants rated instruments based on participant gender. No significant differences were found. However, there were three emerging trends. Oboe was perceived as more feminine by males (M = -1.64, SD = 2.07) compared to females (M = -0.92, SD = 2.14), *t*(116) = -1.76, p = .081. Saxophone was perceived as more masculine by males (M = 0.73, SD = 2.16) compared to females (M = 0.05, SD = 1.87), *t*(115) = 1.68, p = .096. Flute was perceived as more masculine by males (M = -2.58, SD = 2.44) compared to females (M = -3.27, SD = 1.83), *t*(116) = 1.59, p = .114.

Finally, independent samples *t*-tests were conducted to compare how participants rated instruments based on parental instrument experience. No significant differences were found in instrument ratings between participants whose parents had instrumental experience ($n = 37$) and participants whose parents did not have instrumental experience ($n = 81$).

Discussion

The purpose of this study was to investigate how seventh- and eighth-grade band students perceived instrument gender associations. The primary research question was: what are the perceived gender associations of band instruments now, and to what extent are different band instruments perceived as masculine or feminine? The means, medians, and modes of each instrument's ratings were analyzed to answer this question. The survey population ($N = 118$) perceived the flute as the most feminine instrument, and the tuba as the most masculine instrument. The French horn was perceived as the most gender-neutral instrument; its mean, median, and mode were all exactly zero.

By comparing the means for each instrument, a clear order could be ascertained, as previously seen in Table 2. The order, from most feminine to most masculine, was flute, clarinet, oboe, French horn, saxophone, bassoon, percussion, trumpet, trombone, baritone/euphonium, and tuba. When comparing the medians for each instrument, there was a three-way tie between French horn, saxophone, and bassoon (with a median rating of 0). There was also a tie between trumpet and trombone (with a median rating of 2). When comparing the modes for each instrument, all instruments had a mode of 0, except for flute (-3), trombone (3), baritone/euphonium (3), and tuba (5).

Although all three measures of central tendency provide valuable information, I contend that the means provide the clearest picture. With the mean results, there are no ties, meaning each

instrument can be placed in a unique location on the feminine/masculine continuum. Therefore, participants perceived that flute, oboe, and clarinet had feminine gender associations, while saxophone, bassoon, percussion, trumpet, trombone, baritone/euphonium, and tuba all had masculine gender associations. The results show that the French horn was the only gender-neutral instrument. However, saxophone and bassoon were very close to being neutral. One explanation for why far more instruments were perceived as masculine could be the high percentage of male participants (n = 78) involved in this study. Because approximately two-thirds (66.10%) of respondents were male, this may have caused the instrument ratings to skew to the masculine side of the continuum.

The gender associations found in this study are mostly aligned with previous studies but with one surprising difference (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). Although the previous studies only involved 6 out of the 11 band instruments in this study, the studies all resulted in the same order for band instruments. That order, from least to most masculine, was flute, clarinet, saxophone, trumpet, trombone, and drums (percussion). Five out of six instruments from this study appeared in the expected order, but the remarkable difference was percussion. Instead of being perceived as the most masculine instrument, percussion moved two places towards the middle. In fact, in the context of the present study, four instruments (trumpet, trombone, baritone, and tuba) were perceived as more masculine than percussion.

Why was percussion perceived as more gender-neutral than previous studies? One possible explanation for this is in the name “percussion” itself. The three previous studies simply called it “drums,” but using that term to refer to percussion in the band curriculum is outdated (Nutt, 2023; Smith & Davis, 2022). A pedagogical shift in how educators approach percussion has been taking place over the last several decades. In the past, many percussionists were called

"drummers" because all they did was play the drums. Starting in the 1950s, however, American band directors and percussion educators gradually started incorporating mallet instruments into their programs, and now mallet instruments are considered "foundational" in the percussion curriculum, along with snare and timpani (Nutt, 2023; Smith & Davis, 2022, p. 28). More than just "drummers," percussionists are expected to be diverse in their skill sets. Percussion includes a variety of pitched and unpitched instruments with different sizes, shapes, and timbres. This could translate into the perception that percussion is versatile, dynamic, and diverse. It makes sense, then, that the new generation of band students would be more likely to perceive percussion as being more gender-neutral.

Furthermore, gradual shifts have been observed relating to the proportions of males and females who play percussion (Nutt, 2023). Originally, percussion in the United States was almost entirely dominated by men, but over the last several decades, it has become increasingly common to see female percussionists and percussion composers (Nutt, 2023). The greater representation of female percussionists could also explain how the gender association is becoming more neutral.

The next research question pertains to how the proportions of males and females playing specific band instruments have changed compared to the study by Fortney et al. (1993). The present study featured considerably higher percentages of males who played bassoon (33% more), oboe (17% more), flute (13% more), clarinet (12% more), and baritone (11% more). The present study also featured considerably higher percentages of females who played French horn (14% more), trombone (13% more), and saxophone (11% more). The percentages for tuba and percussion were similar in both studies. Intriguingly, the proportion of trumpet players was

almost identical (88% males and 12% females compared to 88.24% males and 11.76% females in the present study).

However, one challenge in comparing the two studies is the overall difference in the male-to-female ratios. The study by Fortney et al. (1993) involved a population of 990 band students, of which 58.69% were male, and 41.31% were female. The current study's population (N = 118) was 66.10% male (n = 78) and 33.90% female (n = 40). Another challenge is the uneven distribution of instruments in the previous study where baritone, French horn, tuba, oboe, and bassoon players each made up 4% or less of the population. Interestingly, there were only three bassoon players (n = 3) in both studies. However, that amounts to 2.5% in the present study compared to 0.03% in the previous one. After Fortney et al. originally conducted their research in 1990, they said, "The sample … seemed to reflect a more or less typical balance of instrumentation for beginning and intermediate bands" (p. 32). Because the distribution of instruments in the present study's sample is far more balanced, this suggests that band programs today may have a more even distribution of instruments than three decades ago.

The next question this study aimed to answer was whether more students are going against gender stereotypes now compared to the findings of previous studies. Research by Hallam et al. (2008) was used to determine which instruments were considered stereotypically feminine, masculine, or neutral. For each study, the subpopulations of participants who played gendered instruments were established by excluding those who played neutral/other instruments and those who left their main instrument blank. In the study by Fortney et al. (1993), 797 participants played instruments with a gender association. There were 84.82% (676) who played an instrument matching their gender stereotype, and 15.18% (121) who played an instrument that went against their gender stereotype. In the current study, 91 participants (n = 91) played

instruments with a gender association; 81.32% (n = 74) of them played an instrument matching their gender stereotype, compared to 18.69% (n = 17) who played an instrument that went against their gender stereotype. Although the difference is small, this comparison suggests that current band students may be going against gender stereotypes at increasing rates, leading to a more diverse representation of males and females who play each instrument.

Significant differences were found in how participants rated instruments based on the school they attended, and the level of class that they were in. Because there were no significant differences between grade levels, this suggests that age is not what impacted the results. Instead, these results point to two factors that impact both criteria: the influence of their band directors, and the influence of their classmates. Band directors can work to influence the culture and perceptions of the students in their program, and peers can influence people around them with their words and actions (Bazan, 2005; Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020; Sinsabaugh, 2005). The results from this study provide many examples of evidence. The top bands at each school only had male tuba players. Participants in those classes perceived tuba as significantly more masculine compared to the participants in second bands where one tuba player was female. Similarly, participants in top bands perceived trombone and French horn as significantly more feminine. Three out of five of the French horn players in top bands were female, compared to two out of three who were male in second bands. Three trombone players in the top bands were female, compared to zero in the second bands. Those same three female trombone players attended the same school which perceived trombone as significantly less masculine compared to the other school that had only had male trombone players. At one school, 71% of saxophone players were male and they perceived saxophone as more masculine. At the other school, only 55% of saxophone players were male and they perceived saxophone as

significantly more gender-neutral. Additionally, the school with more female oboe players perceived the instrument as significantly more feminine, while the other school with an equal number of male and female oboe players perceived the instrument as significantly more gender-neutral.

There were some enlightening individual survey responses. Although the survey population ($N = 118$) rated flute as the most feminine instrument of all, one male flute player rated flute as neutral (0) but rated clarinet and oboe as equally feminine (2). Similarly, two out of three female trombone players rated trombone as neutral. There were two male oboe players, and one rated the instrument as neutral, while the other rated it extremely masculine (5). However, the perceptions of the six male clarinet players were more mixed; three rated the instrument as feminine, one rated it neutral, and two rated it as masculine. This provides unique insight into the perceptions of people who play instruments that go against their gender stereotypes.

Only two participants rated all of the instruments as neutral. The solitary female tuba player was one of them. The other played French horn, the most gender-neutral instrument. Interestingly, they were both in the same class. These findings suggest that some kids may be aware of gender associations, while others may perceive them differently or reject them entirely.

Conclusion

This study about the instrument gender perceptions of seventh- and eighth-grade band students had several important takeaways. First of all, previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992) only focused on a few band instruments, but this study expanded the roster to include the 11 most common band instruments. In order from most feminine to most masculine, these instruments were flute, clarinet, oboe, French horn, saxophone, bassoon, percussion, trumpet, trombone, baritone/euphonium, and tuba. French horn

was rated gender-neutral. These findings were mostly aligned with previous studies, but a notable difference was percussion moving from most masculine to being much closer to gender-neutral. Compared to the study by Fortney et al. (1993), three trends were observed that may have implications for contemporary band programs. In the present study, (1) there was a more even distribution of instruments overall, (2) most instruments had a more even proportion of males and females who played each instrument, and (3) a higher percentage of students were playing instruments that go against their gender stereotypes. Last but not least, the results of this study showed that there were significant differences in how participants rated instruments based on the school they attended and the level of class that they were in.

These results provide very optimistic implications. As evidenced in many instances, gender associations were lessened when students had classmates who went against gender stereotypes. Conversely, gender associations were more pronounced in less diverse classes. This shows that representation matters. Because students knew female trombone players in their class and at their school, they perceived the instrument as significantly less gendered. If an instrument has a weaker gender association, there is less of a stigma for going against the gender stereotype. If this culture is cultivated and maintained, then social pressures will be lessened, and more students will feel that they can choose the instruments they want to play. Band directors can have a huge influence in facilitating a culture of inclusion. Instead of simply accepting the current state of instrument gender stereotypes, band directors should make an effort to lessen their effects. They can do that by encouraging beginners to learn the instruments they are most interested in or recommending instruments they have an aptitude for, regardless of their gender. All it took was one female tuba player to significantly change the perception of the instrument.

Further research is recommended to qualitatively investigate why people perceive instruments the way they do, and what has affected or influenced their perceptions. This would provide useful information on how to lessen the effects of gender stereotypes. Additionally, further research is recommended to investigate band programs that are successfully minimizing the effects of instrument gender stereotypes. What specific strategies and communications have been effective for band directors in cultivating an environment of safety, acceptance, diversity, and inclusion in their programs? This would provide invaluable tools for how to improve band programs and provide a better experience for students.

References

Abeles, H. F., & Porter, S. Y. (1978). The sex-stereotyping of musical instruments. *Journal of Research in Music Education, 26*(2), 65-75. https://doi-org.ezproxy.uta.edu/10.2307/3344880

Abeles, H. (2009). Are musical instrument gender associations changing? *Journal of Research in Music Education, 57*(2), 127-139. https://doi-org.ezproxy.uta.edu/10.1177/0022429409335878

Bazan, D. E. (2005). An investigation of the instrument selection processes used by directors of the beginning band. *Contributions to Music Education*, *32*(1), 9-31. http://www.jstor.org/stable/24127233

Bergee, M. J., Demorest, S. M. (2003). Developing tomorrow's music teachers today. *Music Educators Journal, 89*(4), 17-20. https://doi.org/10.2307/3399899

Bhat, A. (n.d.). *Eliminate order bias in surveys with question randomization.* QuestionPro. Retrieved March 24, 2024, from https://www.questionpro.com/blog/eliminate-order-bias-in-surveys-with-question-randomization/

Conway, C. (2000). Gender and musical instrument choice: A phenomenological investigation. *Bulletin of the Council for Research in Music Education*, *146*, 1-17. http://www.jstor.org/stable/40319030

Cooper, P. K., & Burns, C. (2021). Effects of stereotype content priming on fourth and fifth grade students' gender-instrument associations and future role choice. *Psychology of Music, 49*(2), 246-256. https://doi-org.ezproxy.uta.edu/10.1177/0305735619850624

Cramer, K. M., Million, E., & Perreault, L. A. (2002). Perceptions of musicians: Gender stereotypes and social role theory. *Psychology of Music, 30*(2), 164-174. https://doi-org.ezproxy.uta.edu/10.1177/0305735602302003

Delzell, J. K., & Leppla, D. A. (1992). Gender association of musical instruments and preferences of fourth-grade students for selected instruments. *Journal of Research in Music Education*, *40*(2), 93-103. https://doi.org/10.2307/3345559

Diamond, L. M. (2020). Gender fluidity and nonbinary gender identities among children and adolescents. *Child Development Perspectives, 14*(2) 110-115. https://doi-org.ezproxy.uta.edu/10.1111/cdep.12366

Fortney, P. M., Boyle, J. D., & DeCarbo, N. J. (1993). A study of middle school band students' instrument choices. *Journal of Research in Music Education*, *41*(1), 28-39. https://doi.org/10.2307/3345477

Garrett, M. L. (2012). The LGBTQ component of 21st-century music teacher training: Strategies for inclusion from the research literature. *Update: Applications of Research in Music Education, 31*(1), 55-62. https://doi-org.ezproxy.uta.edu/10.1177/8755123312458294

Griswold, P. A., & Chroback, D. A. (1981). Sex-role associations of music instruments and occupations by gender and major. *Journal of Research in Music Education*, *29*(1), 57-62. https://doi.org/10.2307/3344680

Hallam, S., Rogers, L., & Creech, A. (2008). Gender differences in musical instrument choice. *International Journal of Music Education, 26*(1), 7-19. https://doi-org.ezproxy.uta.edu/10.1177/0255761407085646

Harrison, A. C., & O'Neill, S. A. (2000). Children's gender-typed preferences for musical instruments: An intervention study. *Psychology of Music*, *28*(1), 81-97. https://doi-org.ezproxy.uta.edu/10.1177/0305735600281006

Marshall, N. A., & Shibazaki, K. (2012). Instrument, gender and musical style associations in young children. *Psychology of Music, 40*(4), 494-507. https://doi-org.ezproxy.uta.edu/10.1177/0305735611408996

Nutt, H. J. (2023). Paul Price and American percussion practices during the 'Golden Age' of higher education. *Journal of Historical Research in Music Education.* Advance online publication. https://doi.org/10.1177/15366006231188386

O'Neill, S. A., & Boulton, M. J. (1996). Boys' and girls' preferences for musical instruments: A function of gender? *Psychology of Music, 24*(2), 171-183. https://doi-org.ezproxy.uta.edu/10.1177/0305735696242009

Phillips, K. H. (2008). *Exploring research in music education and music therapy.* Oxford University Press.

Pope, D. A., & Mick, J. P. (2018). How positive festival results impact a music program. *Music Educators Journal, 105*(1), 33-38. https://doi.org/10.1177/0027432118792071

Rawlings, J. R., & Espelage, D. L. (2020). Middle school music ensemble participation, homophobic name-calling, and mental health. *Youth & Society, 52*(7), 1238-1258. https://doi-org.ezproxy.uta.edu/10.1177/0044118X19866071

Schmidt, P. (2020). Making policy work for us: Changing the way music educators look at policy. *Music Educators Journal, 107*(1), 20-23. https://doi.org/10.1177/0027432120945121

Shin, H., & Ryan, A. M. (2017). Friend influence on early adolescent disruptive behavior in the classroom: Teacher emotional support matters. *Developmental Psychology, 53*(1), 114-125. https://doi.org/10.1037/dev0000250

Sinsabaugh, K. (2005). *Understanding students who cross over gender stereotypes in musical instrument selection* (Order No. 3175728). Available from ProQuest Dissertations & Theses Global. (305012691). https://login.ezproxy.uta.edu/login?url=https://www.proquest.com/dissertations-theses/understanding-students-who-cross-over-gender/docview/305012691/se-2

Smith, G. D., & Davis, V. W. (2022). A critical examination of percussion and drums in the collegiate curriculum. *Bulletin of the Council for Research in Music Education*, *(231)*, 25-40. https://link-gale-com.ezproxy.uta.edu/apps/doc/A757022660/AONE?u=txshracd2597&sid=summon&xid=66aec7f8

Stronsick, L. M., Tuft, S. E., Incera, S., & McLennan, C. T. (2018). Masculine harps and feminine horns: Timbre and pitch level influence gender ratings of musical instruments. *Psychology of Music, 46*(6), 896-912. https://doi-org.ezproxy.uta.edu/10.1177/0305735617734629

Twenge, J. M. (2023, May 1). How Gen Z changed its views on gender. *Time*. https://time.com/6275663/generation-z-gender-identity/

Vygotsky, L. (1978). *Mind in Society.* Cambridge, MA: Harvard University Press.

Wrape, E. R., Dittloff, A. L., & Callahan, J. L. (2016). Gender and musical instrument stereotypes in middle school children: Have trends changed? *Update: Applications of Research in Music Education, 34*(3), 40-47. https://doi.org/10.1177/8755123314564255

Chapter 3 Appendix A: IRB Approval Letter

UNIVERSITY OF TEXAS ARLINGTON | OFFICE OF RESEARCH ADMINISTRATION
REGULATORY SERVICES

1/18/2024

IRB Approval of Minimal Risk (MR) Protocol

PI: Kevin Merkel
Faculty Advisor: John Wayman
Department: Music
IRB Protocol #:2024-0114
Study Title: *Gender Associations of American Band Instruments: Exploring the Perceptions of Middle School Band Students*
Effective Approval: 1/17/2024

Protocol Details

- Original Protocol Approval Date: 1/17/2024

The IRB has approved the above referenced submission in accordance with applicable regulations and/or UTA's IRB Standard Operating Procedures. The IRB team has reviewed and approved this non-federally funded, non-FDA regulated protocol in accordance with the UTA IRB Internal Operating Procedures. The study is approved as Minimal Risk.

Principal Investigator and Faculty Advisor Responsibilities

All personnel conducting human subject research must comply with UTA's IRB Standard Operating Procedures and RA-PO4, Statement of Principles and Policies Regarding Human Subjects in Research. Important items for PIs and Faculty Advisors are as follows:

- **Notify Regulatory Services of proposed, new, or changing funding source**
- Fulfill research oversight responsibilities, IV.F and IV.G.
- Obtain approval prior to initiating changes in research or personnel, IX.B.
- Report Serious Adverse Events (SAEs) and Unanticipated Problems (UPs), IX.C.
- Fulfill Continuing Review requirements, if applicable, IX.A.
- Protect human subject data (XV.) and maintain records (XXI.C.).
- Maintain HSP (3 years), GCP (3 years), and RCR (4 years) training as applicable.

Chapter 3 Appendix B: Middle School Band Survey

Please circle a number that matches your opinion of how feminine or masculine each instrument is.

Saxophone 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5
Flute 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5
Trombone 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5
French Horn 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5
Oboe 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5
Tuba 	Feminine					Neutral					Masculine
	5	4	3	2	1	0	1	2	3	4	5

Percussion (Drums/Mallets/Etc.) 	Feminine Neutral Masculine 5 4 3 2 1 0 1 2 3 4 5
Trumpet 	Feminine Neutral Masculine 5 4 3 2 1 0 1 2 3 4 5
Clarinet 	Feminine Neutral Masculine 5 4 3 2 1 0 1 2 3 4 5
Baritone / Euphonium 	Feminine Neutral Masculine 5 4 3 2 1 0 1 2 3 4 5
Bassoon 	Feminine Neutral Masculine 5 4 3 2 1 0 1 2 3 4 5

What grade are you in? _____

What main instrument do you play in the band? _____

Are you: Male or Female (Please circle one)

Do you have a parent/guardian that plays an instrument? _____ If so, who plays which instrument(s)?

My _____ plays: _____

My _____ plays: _____

CHAPTER 4

GENDER ASSOCIATIONS OF AMERICAN BAND INSTRUMENTS: EXPLORING THE PERCEPTIONS AND EXPERIENCES OF UNIVERSITY BAND STUDENTS

Music education plays an important role in the lives of students of all ages. People who enroll in a band class should be able to learn an instrument they are interested in, while in a safe, supportive school environment. Unfortunately, that is not always a reality. Over the last several decades, there has been a consensus among researchers that pervasive stereotypes exist relating to the musical instrument selection process and attitudes about musician gender (Conway, 2000; Delzell & Leppla, 1992; Hallam, Rogers, & Creech, 2008; O'Neill & Boulton, 1996; Wrape, Dittloff, & Callahan, 2016). Many factors can influence instrument stereotypes, such as society, culture, family, and the media (Conway, 2000).

A stereotype is "an often unfair and untrue belief that many people have about all people or things with a particular characteristic" (Brittanica Dictionary, 2024). Stereotypes of any kind are a problem, especially when generalizations are made that have nothing to do with whether individuals are capable of certain tasks. Furthermore, stereotypes can create and exacerbate social pressures that influence how people make decisions and how they interact with others. According to Conway (2000) and Sinsabaugh (2005), peer pressure related to gender stereotypes constrains students' full participation in many types of musical experiences. Abeles and Porter (1978) found that these stereotypes "constrict the behavior and thus the opportunities of individuals," and they ultimately limit the "range of musical experiences available to male and female musicians" (p. 65). Similarly, Green (1997) observed that "both boys and girls tended to restrict themselves or find themselves restricted to certain musical activities for fear of intruding

into the other sex's [gender's] territory" (p. 244). This means that children's behavior and the behaviors of their peers and adults around them are likely to be influenced by the fear of going against gender stereotypes. Additionally, gender stereotypes can lead to many other negative outcomes, including bullying, harassment, and poor mental health (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

The association of gender with musical instruments profoundly impacts how people perceive and experience music (Abeles & Porter, 1978, Green, 1997). Considering instruments masculine or feminine creates stereotypes that indicate it is more acceptable for males or females to play certain instruments and less acceptable for them to play others. This means that some people may not end up playing the instrument that they are most interested in or the instrument that they have the greatest aptitude for, because societal pressures suggest they are not allowed to play that instrument. These gender stereotypes can be experienced both consciously and subconsciously, and they are often communicated implicitly and explicitly. Instrument gender stereotypes can influence the beginner instrument selection process, student retention/attrition in music programs, and the eventual gender composition of musical ensembles at all levels, including professional ensembles (Wrape et al., 2016).

Hallam et al. (2008) conducted a wide-scale investigation into the proportions of males and females who play each instrument. They found that greater numbers of females played flute, oboe, clarinet, and bassoon, while greater numbers of males played tuba, baritone/euphonium, trombone, trumpet, and percussion. They found the French horn and saxophone to be the most equal. Both instruments were within 1% of a 50/50 split between the number of males and females who played them. These proportions are generally aligned with gender associations observed in previous studies (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992).

In a study by Cramer et al. (2002), college students were asked to evaluate four fictional musicians who played instruments that were typical or atypical of their gender. The researchers expected the musicians who played instruments that did not match typical gender stereotypes to be judged more harshly. Surprisingly, males and females playing masculine instruments were rated the same, while the male playing a feminine instrument (the flute) was the only one judged harshly. Why did they perceive that musician differently, and would the current generation of students react the same way?

Limited research has been conducted related to the instrument perceptions and stereotypes of the 11 standard band instruments commonly in American band classrooms. These instruments are flute, oboe, clarinet, saxophone, bassoon, trumpet, French horn, trombone, baritone/euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016). Most studies only examined gender associations of a limited number of instruments represented in today's ensembles and included instruments not found in the band classroom (Abeles, 2009; Abeles & Porter, 1978; Cooper & Burns, 2019; Cramer, Million, & Perreault, 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Harrison & O'Neill, 2000; Marshall & Shibazaki, 2012; O'Neill & Boulton, 1996; Stronsick, Tuft, Incera, & McLennan, 2017). One prominent study that did focus on American band instruments took place 31 years ago (Fortney, Boyle, & DeCarbo, 1993). In the decades since then, considerable changes have occurred in American society, especially with the feminist movement for equality in the workforce, and the Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Rights movement (Abeles, 2009; Diamond, 2020; Twenge, 2023). As a result, significant changes may have occurred in how Americans perceive different instruments, as well as the percentages of males and females who play each instrument.

Present Study

This mixed methods research study investigated the gender associations of traditional American band instruments, focusing on the perceptions and experiences of university band students. This study involved a survey and interviews to learn more about their experience during the instrument selection process, what influenced their choice, their experience with how others responded to their instrument choice over the years, and their perceptions of other similar topics. Rarely has research been conducted to study the gender stereotypes of instruments qualitatively. A study by Conway (2000) explored the perceptions of 37 high school instrumental students. Some students played gender-conforming instruments, and some did not. This study provided insight into how and why participants chose their primary instruments and how others perceived their instruments. In the last 24 years, perceptions of instrument gender stereotypes may have changed, especially since a growing number of children and adolescents describe themselves as transgender, gender fluid, or nonbinary (Diamond, 2020; Twenge, 2023). Also, it would be worthwhile to investigate this topic further with a different age group: university students. Musicians in this age group have a few more years of experience playing their instruments, so it will be beneficial to learn more about their perceptions and the perceptions of those they interact with. Additionally, it will be beneficial to discover how perceptions may have changed over the years, from when they were beginners to now. From a pedagogical standpoint, learning how students' interactions with teachers, parents, and peers shaped their experience participating in band programs will be very useful, as this could inform future decisions of educators concerning their classroom environments, retention of students, and the culture of their programs.

Music educators play an important role in their classrooms, schools, and communities (Bergee & Demorest, 2003; Pope & Mick, 2018; Schmidt, 2020; Shin & Ryan, 2017). By gaining insight into the perceptions of middle school band students, music educators can reflect on how they address gender stereotypes, reevaluate their recruiting processes, and assess how they can improve students' experience in their program. Becoming more aware of stereotypes will provide teachers with a better understanding of how to support their students and make their classrooms more positive, safe, and inclusive (Conway, 2000; Garrett, 2012; Rawlings & Espelage, 2020).

Primary Research Questions:

1. How do university students perceive gender associations of band instruments?
2. What are the most common influences for why people choose their instrument?
3. What was the experience of university students playing their instruments in their band programs, and how did others respond to their instrument choice over the years?

Additional Research Questions:

4. How have the proportions of males and females playing specific band instruments changed compared to the findings by Fortney et al. (1993)?
5. Do participants feel that their primary instrument is played more by males or females, and how does this compare with statistics from previous research (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992; Hallam et al., 2008)?
6. When asked what they would say to their fifth-grade daughter who is expressing an interest in playing a low brass instrument and what they would say to their fifth-grade son expressing an interest in playing the flute, do the participants respond the same way to

their hypothetical sons and daughters? If not, in which scenario do participants respond more positively or negatively?

7. Are there similarities in how people respond based on whether their primary instrument matches their gender stereotype or not?
8. Are there similarities in the experience (how others perceived and interacted with them) of people whose primary instrument does or does not match their gender stereotype?

Methodology

Participants

The target population for this study was adult university band students (18 years of age or older) who were enrolled in the top three band classes at a large urban university in the southwest region of the United States. To maintain confidentiality and protect personal privacy, these classes were coded as top band, second band, and third band. There were a total of 156 students enrolled in these three classes. A total of 134 participants (N = 134) qualified and voluntarily completed the requirements to be included. Approval was obtained from the Institutional Review Board (IRB) before any potential subjects were invited to participate. The study was approved as minimal risk, as seen in Chapter 4 Appendix A: IRB Approval Letter.

Data Collection

This study involved two phases: a survey and an interview process. The first phase utilized an electronic survey created on QuestionPro. The survey was pilot-tested for troubleshooting. Minor adjustments were made (like grouping questions into blocks) to improve the flow of the survey experience and make it more visually appealing. Another change involved adding programming logic connecting the last two questions. The pilot test responses yielded an

estimated completion time of approximately 5 minutes. After receiving approval from the IRB, the pilot-testing data was cleared on QuestionPro to create a blank slate.

Participants were able to complete the survey on their electronic devices voluntarily. Smartphones, tablets, laptops, and desktop computers were all compatible with the survey design. Participants provided informed consent by reading through the project overview on the first page, acknowledging they were over 18 years of age, and advancing to complete the survey.

There were four criteria for determining whether potential participants could be included in this study. Participants were included in the study if they (1) were enrolled in one of the top three band courses, (2) were in attendance the day the survey was being conducted, (3) acknowledged that they were adults, and (4) completed the survey. If potential participants were under the age of 18, or if they were not enrolled in one of the top three band classes at the university, they were instructed to exit the survey.

Two types of data were collected. Demographic data related to the participants was collected in the first portion of the survey, including their age, which band class they attended, and whether they identified themselves as a man, a woman, or in some other way (Keeter & Brown, 2024). The other type of data collected was information pertinent to answering the primary and secondary research questions for this study. This portion of the study investigated (1) how university students perceive gender associations of band instruments, and (2) what influences were involved during their instrument selection process. Participants were also asked about their primary instrument, whether it was the same instrument they started in Beginner Band, and how they decided which instrument to play. Next, they were asked if they felt like their instrument was played more by males or females. After that, there were two questions about a hypothetical daughter and son. To increase reliability and validity, these two questions were

programmed to appear in a random order, as randomization "removes discrepancies in the method of collecting data and eliminates bias" (Bhat, n.d.). The following was a sample question from the survey: "Imagine you have a 5th-grade son who is about to start band class. What would you say to him if he expressed an interest in playing the flute?" The other question asked what they would say to a hypothetical daughter who expressed an interest in playing a low brass instrument. Finally, they were asked if they were open to being interviewed. If they answered yes, they were asked to provide their contact information. If they answered no, the last survey item was skipped because no contact information was required. The full list of survey questions can be found in Chapter 4 Appendix B: University Band Music Survey.

The second phase of this study was an interview process. This format allowed more explanation and clarification of viewpoints. This was essential for answering the final primary research question: what was the experience of university students playing their instruments in band programs, and how did others respond to their instrument choice over the years? Within the survey, participants indicated whether they were open to being interviewed. Then four participants (who provided their permission) were selected based on differing characteristics relevant to the research. These included one self-identified male and female whose primary instrument matched their gender stereotype and one self-identified male and female whose primary instrument did not match their gender stereotype. These four participants were selected based on quality, elaboration, and detail of open-ended responses in the survey. I felt it was important to hear from at least one participant in each category. While conducting more than four interviews would be ideal for further investigating this topic, this number was established in advance based on time constraints. The full list of interview questions can be found in Chapter 4 Appendix C: Interview Questions/Prompts.

Procedures

The band directors of the classes involved with this study were contacted, and they provided permission for me to conduct this research study with their students. The survey was conducted for each of the three band classes in their regular classrooms. This happened at agreed-upon dates and times, either at the beginning or the end of the regular class periods. A document was prepared that included a QR code and link to the survey. This document was printed and cut into slips beforehand, and it was passed out to the members of the class. They were able to complete the survey using their smartphone or other device of choice. Participating in the survey was voluntary, and there were no consequences for not participating or not completing it. At the end of the survey, participants indicated whether they were open to an interview for follow-up questions. The only individually identifiable information collected in the survey was the contact information that they could choose to provide if they wanted to be interviewed. This was necessary so that I could contact them later to set up an interview time and location. At the end of the allotted time to complete the survey, the paper slips with the QR code and link were collected to prevent participants from sharing the link with people outside the scope of the target population. After the data was collected for the third and final class, the survey's status was marked "closed" to prevent any new responses. The surveys were then analyzed for emerging themes related to the research questions (Phillips, 2008).

Four participants (who provided their permission) were selected for interviews. These included one self-identified male and female whose primary instrument matched their gender stereotype and one self-identified male and female whose primary instrument did not match their gender stereotype. These four participants were selected based on the quality, elaboration, and detail of open-ended responses in the survey. Depending on whether they provided a phone

number or email address, the invitations were texted or emailed to set a date, time, and location for each interview. This communication occurred within the seven days after the survey. The interviews occurred at agreed-upon times and locations on campus that were convenient for the interviewees. The interview questions/prompts were asked and discussed. Instead of actual names, pseudonyms were chosen to represent them. Interviewees were allowed to choose their pseudonyms or decide if they wanted me to choose one for them. Conversations were recorded and transcribed on Microsoft Teams, and the transcripts were analyzed to find emerging topics (Phillips, 2008). Then, the data results were triangulated with participants for accurate representation and presented.

Results

Survey Results

This survey investigated the instrument gender perceptions of university band students. The goal was to receive survey responses from over 50% of the 156 students enrolled in these courses to attain "a good rate of return" (Phillips, 2008, p. 156). A total of 134 completed survey responses were received (N = 134), resulting in a response rate of 85.90%.

First, the survey collected data regarding several demographic characteristics of the study population (N = 134). The survey participants were undergraduate and graduate students who were 18-33 years old. Most students were 18-22 years old (n = 111), and only four of them were age 25 or older (n = 4). They were asked if they describe themselves as men (n = 82), women (n = 42), or in some other way (n = 10). The participants were members of the top band (n = 46), the second band (n = 43), and the third band (n = 43).

Next, participants were asked about their primary instrument. The 11 most common traditional American band instruments are flute, oboe, clarinet, saxophone, bassoon, trumpet,

French horn, trombone, baritone/euphonium, tuba, and percussion (Fortney et al., 1993; Wrape et al., 2016). To classify participants' responses about what instrument they played, instruments directly related to the 11 instrument categories were coded together. For example, piccolo was grouped with flute, bass clarinet was grouped with clarinet, and bass trombone was grouped with trombone. All types of saxophones were combined, including soprano, alto, tenor, and baritone. This allowed for analysis based on similar instruments compared to others.

Almost all the participants (n = 132) played one of the 11 most common traditional American band instruments, or an instrument directly related to them. String bass, which was played by one male and one female (n = 2), was the only other instrument reported as a primary instrument. The following are the numbers of participants who played each instrument: flute (n = 19), oboe (n = 3), clarinet (n = 21), saxophone (n = 12), bassoon (n = 10), trumpet (n = 21), French horn (n = 8), trombone (n = 13), baritone/euphonium (n = 6), tuba (n = 8), and percussion (n = 11). A chi-square test of independence was performed to evaluate the relationship between the gender of participants and the main instrument they played. The relationship between these variables was significant, χ^2 (22, N = 134) = 44.40, p = .003. The significantly different proportions of which genders played each instrument can be found in Table 1. The instrument columns have been organized with the highest percentage of female players on the left side and the lowest percentage of female players on the right side.

Table 1

The Counts and Percentages of the Genders Who Played Each Instrument

	Oboe	*Flute*	*Perc.*	*Bassoon*	*F. Horn*	*Sax*	*Clarinet*	*Baritone*	*Trumpet*	*Tromb.*	*Tuba*
Female	3	12	5	4	3	4	7	1	2	0	0
Female %	100.00	63.16	45.45	40.00	37.50	33.33	33.33	16.67	9.52	0.00	0.00
Male	0	4	6	4	5	7	14	5	17	11	8
Male %	0.00	21.05	54.55	40.00	62.50	58.33	66.67	83.33	80.95	84.62	100.00
Other	0	3	0	2	0	1	0	0	2	2	0
Other %	0.00	15.79	0.00	20.00	0.00	8.33	0.00	0.00	9.52	15.38	0.00

Most participants (*n* = 127) reported that their current main instrument was the same one they started playing in their beginner class, or they played an instrument directly related to what they started on (e.g., starting on clarinet, and switching to bass clarinet later). Only 7 participants (*n* = 7) ended up switching instruments. The following are the details of their instrument changes: percussion to flute, percussion to clarinet, flute to saxophone, saxophone to bassoon, euphonium to trombone, tuba to trombone, and French horn to string bass.

When asked what most influenced their choice of instrument, there were a variety of responses. Some participants gave one clear reason for their choice, while others gave multiple reasons. Regardless, they all either stated or hinted at the primary factor in their decision; these responses were coded with similar responses and analyzed for emerging trends (Phillips, 2008). The most common reason cited was the instrument try-out process at their school (*n* = 31). Being influenced by their band director was the second most common reason (*n* = 29). There was a tie for third place between the influence of parents/guardians (*n* = 20), and thinking the instrument was cool (*n* = 20). Other reasons for choosing their instrument included liking the sound (*n* = 8), famous musicians/pop culture (*n* = 7), wanting to be different (*n* = 5), playing it seemed fun (*n* = 4), the influence of friends/classmates (*n* = 4), the influence of siblings (*n* = 3), thinking it matched their personality (*n* = 1), convenience (*n* = 1), and one could not remember why they chose their instrument (*n* = 1).

Then, participants were asked if they felt like their instrument was played more by males or females. They could choose from three responses: “more males play my instrument” (*n* = 74), “more females play my instrument” (*n* = 25), or “an equal number of males and females play my instrument” (*n* = 35). Chi-square tests of independence were performed to evaluate the relationships between this perception of their instrument’s gender association compared to other

demographic details. Two significant relationships were discovered. First, the relationship between the participants' main instrument and their instrument gender perception was significant, χ^2 (22, N = 134) = 147.59, p < .001, as shown in Table 2. The instrument rows have been sorted by instrument family (woodwinds, brass, percussion, and strings). Flute players perceived flute as being played more by females, while most others perceived their instruments as being played more by males. All oboe players felt that an equal number of males and females played oboe, and most clarinet, bassoon, and French horn players also felt their instruments were equally represented.

Table 2

Relationship Between Participants' Main Instrument and Their Instrument Gender Perception

Participant's Instrument	*More males play my instrument*	*More females play my instrument*	*An equal number play my instrument*	*Total*
Flute	0	18	1	19
Oboe	0	0	3	3
Clarinet	3	5	13	21
Sax	9	0	3	12
Bassoon	3	1	6	10
Trumpet	20	0	1	21
F. horn	3	0	5	8
Trombone	12	0	1	13
Baritone	5	0	1	6
Tuba	8	0	0	8
Perc.	9	1	1	11
Str. Bass	2	0	0	2
Total	74	25	35	134

The other significant relationship was between the participants' gender and their instrument gender perception, χ^2 (4, N = 134) = 14.57, p = .006, as shown in Table 3. Compared to females, males were significantly more likely to be playing an instrument they believed was played more commonly by males, and the opposite was true for females.

Table 3

Relationship Between Participants' Gender and Their Instrument Gender Perception

	More males play my instrument	*More females play my instrument*	*An equal number play my instrument*	*Total*
Male Participant Count	51	8	23	82
Male Expected Count	45.3	15.3	21.4	
Female Participant Count	17	13	12	42
Female Expected Count	23.2	7.8	11.0	
Other Participant Count	6	4	0	10
Other Expected Count	5.5	1.9	2.6	
Total	74	25	35	134

Finally, participants were asked two open-ended hypothetical questions that appeared in a random order. When asked what they would say if their hypothetical fifth-grade daughter expressed an interest in playing a low brass instrument, 110 responses were positive (n = 110), 20 were indifferent (n = 20), and 4 were negative (n = 4). When asked what they would say if their hypothetical fifth-grade son expressed an interest in playing the flute, 100 responses were positive (n = 100), 22 were indifferent (n = 22), and 12 were negative (n = 12). At the end of the survey, participants were asked if they were willing to be contacted for a follow-up interview (n = 74), or not (n = 60).

Interview Results

After the survey was conducted, the second phase of this study was an interview process. Four participants who expressed interest were selected for interviews based on the following criteria. First, an analysis of survey responses based on participant gender and primary instrument allowed me to narrow down prospective interviewees into four categories. These included self-identified males and females whose primary instrument matched their gender stereotype and self-identified males and females whose primary instrument did not match their gender stereotype. One participant was selected from each of these four categories based on the quality, elaboration, and detail of open-ended responses in the survey. In full transparency, two

of the four originally selected interviewees did not respond to the communications I sent to the contact information they provided. Therefore, the same criteria were used to quickly select two replacement candidates. Within a week of conducting the survey, four separate interviews were scheduled on campus at times and locations that were convenient for each participant. These interviews were approximately an hour each, and they were spread across three days.

The interview questions were open-ended and designed to elicit thoughtful conversation and reflective thinking on past experiences. It is acknowledged that extended conversations with these four interviewees do not necessarily provide the basis for offering unequivocal generalizations concerning American university band students. However, multiple specific themes were observed during the interview process and identified afterward during data analysis. These insights can be especially valuable to music educators, current and former music students, and anyone who knows someone who is, was, or potentially will be in a band program. Pseudonyms have been used to maintain confidentiality and protect personal privacy.

Lauren – Female Playing a Stereotypically Masculine Instrument

The first participant I interviewed was Lauren. She grew up in a suburban neighborhood in the western region of the metropolitan area. She was a freshman euphonium player who started playing the instrument in sixth grade. In her free time, she also started learning bass guitar in 2020. Her love for music began in elementary school, and she was an enthusiastic member of her school choir in fifth grade. She said, “I loved music, performing things, the whole process.”

In the spring of that school year, an instrument try-out event was announced for students interested in joining the band program. She was so excited and couldn’t wait to tell her mom, “I wanna go try out an instrument!” Her mom was amused by how adamant she was that she needed to go, so her mom agreed to take her. The event was held in the cafeteria of the middle

school she would be attending the following year. Different instrument booths were set up around the room, and there were teachers at each booth facilitating the try-out process for the various instruments. Prospective students were handed a scoring page that they would take to each booth, and for each instrument they tried, the teachers gave them a score indicating how good of a fit they thought the instrument would be for them. Lauren tried out all of the instruments, except percussion. She didn't end up with any 5's (perfect scores), but she did receive 4's when she tried clarinet, euphonium, and tuba. She recalled that her arms were too short for the trombone, the flute was difficult, and the French horn was uncomfortable. For her, it ended up being a decision between clarinet and euphonium. She said, "I ended up going with the euphonium because after I made the first noise with it, I just wanted to keep playing it again." I asked what it was about the clarinet that made it her second choice. She responded, "The lady was really nice, and it was fun, and she made it a nice experience for me." I clarified, "So the clarinet was still a good experience, but euphonium just had like a connection with you," and she agreed. We talked further about the event. She said she felt like she got a good personalized experience at each of the instrument booths, but some of the teachers seemed grumpy. Before the event, her first preference was actually piccolo. However, she did not realize that students had to start on the flute first, and she struggled with the instrument. She didn't even know what a euphonium was before going, but after trying it out, she confidently made the decision that day that it was the instrument for her.

Next, I asked about what Lauren's parents thought about her instrument choice. She lived with her mom who has "always been her number one fan." Her mom was very supportive and was proud of Lauren for advocating for herself and knowing what she wanted to do. Her dad lived in a different city, nearly 300 miles away, but they would occasionally talk on the phone.

Because he was a former trumpet player, she thought he would be excited she was joining the band. However, when she told him, he said several negative things, like, “You’ll be in the back, no one’s going to really hear you, stuff like that.” Although she didn’t remember everything he said, she said she remembered being sad after that conversation. On a lighter note, there was a surprising coincidence. About a year after she started playing euphonium, she found out that her grandpa on her dad’s side also used to play euphonium when he was in the military band. She had no idea about this when she chose the instrument, but she thought it was “really cool" and felt like it was her destiny. It became something that brought her closer to her grandparents because they wanted to stay in touch and hear how things were going in her band class.

Then I asked if she felt there were gender stereotypes for instruments. She said, “Definitely.” She described how her beginner class had 22 low brass students. Only four students, including her, were female, and she was the only female euphonium player. As she got to high school, most of the girls who played low brass instruments ended up quitting, so “almost all of the brass players were guys.” She said it was disappointing that her female classmates ended up quitting, and she lost touch with them after that. From her experience in bands over the years, she said flute stood out as being mainly played by girls, and she added that bassoon and bass clarinet also seemed to be played more often by girls. However, she said clarinet, saxophone, and French horn were more mixed, and she never saw many oboe players at all. She estimated that only about 20% of percussionists were girls.

When I asked if any particular instruments stood out as being masculine or feminine, she said it seemed like “a yucky question.” She continued, “It’s a new age, and times are more progressive. You tend to hear a lot that gender itself is a social construct, so there are roles based on what is more masculine or feminine… and I don’t know if you could really describe an

instrument that way because it's an inanimate object." When I asked her to tell me more about that, she added "It's only the instruments at the extreme end that I can think of, like maybe the flute being girly," although she "wouldn't consider low brass instruments masculine" because she plays euphonium, and she knows girls that play tuba and trombone. I asked if any particular instruments stood out as being gender-neutral. She said, "Instruments are objects so they don't have a gender. I don't know, bassoon seems pretty neutral. It's such a weird thing to think about. Now an image just popped into my head of instruments… like a bassoon with a bowtie." We both laughed. She concluded, "You can play anything."

Next, I asked where she thought gender stereotypes come from. She said they seem to come from religion, parents, how people were raised, and seeing how adults act. She believed that if young kids saw more people playing different instruments it might lessen stereotypes. Lauren shared that she wanted to be an example for younger girls that they could be successful on low brass instruments, and she hoped to inspire other girls to stick with their instruments instead of quitting. Lauren's middle school band director (a female trumpet player) was an inspiration for her and motivated her to keep trying, learning, and improving.

In middle school, she felt that there was a more relaxed atmosphere because it was new and everyone was learning together. Things became more serious in high school because of the higher stakes and bigger competitions. She tried out for leadership and became a drill instructor in her junior year and section leader in her senior year. She said that "it was a struggle" trying to lead her section and be taken seriously as the only female in the section. She felt like she was constantly striving to be seen and earn respect, while everyone else just seemed to respect male section leaders more quickly and easily. She said the female tuba section leader had it even harder than she did, but they both rose to the challenge. She developed intrinsic motivation and a

desire to be better for herself. Although her time in high school was difficult because of the conflict with her peers, she was much happier in her university band because of her supportive classmates and professors. She has developed a healthier mindset about her personal growth and realized everyone has strengths and weaknesses. As she reflected on her teachers, she said "Just having someone that believes in you meant the world to me."

When asked if she had any advice for a girl about to start playing a low brass instrument, she responded, "Don't forget the reason why you started in the first place, because you can lose that reason while you're trying to be perfect. You don't have to be perfect. Nobody is perfect. So do it for the love rather than for being perfect."

Ron – Male Playing a Stereotypically Feminine Instrument

The second interview was with Ron, a freshman who played the flute. He started learning the instrument a few months before starting sixth grade. He grew up in a suburban neighborhood. When he was around eight years old, he learned how to make sounds by blowing over a bottle and developed the ability to whistle. Over time, he became very skilled at matching pitch and whistling back melodies that he heard. His mom has played piano for most of her life, and she helped him develop a good ear and a passion for music. His dad never played any instruments.

In the spring of his fifth-grade year, the middle school band performed at his elementary school to get kids excited about joining the band program. Then, a few weeks later, an instrument try-out event was hosted at the middle school. His parents were with him that day, and they didn't care what instrument he chose; they were just happy that he had an interest. Ron tried several instruments, and he was able to make good sounds on bassoon, oboe, flute, and saxophone. His middle school teacher was trying to steer him towards either flute or oboe. He knew that oboes were more expensive and didn't want to deal with buying reeds. He also wanted

to get an instrument of his own, instead of renting an oboe from the school. Aside from all these factors, he said the most important reason was, “I liked the sound of flute. I mean, the oboe sounds amazing as well, but I just like the sound of the flute more. And the idea of thinking how to play it was a lot easier to concept.” He said his parents were very supportive of his choice, and they were totally on board from the start.

When asked if he feels like there are gender stereotypes for different instruments, he said, “I do feel that there are gender stereotypes because it’s stereotyped that more girls play flute, and guys play low brass.” He described how these stereotypes can be seen and are perpetuated in most performing ensembles, and he concluded that when people see so many examples of this pattern, it’s understandable “why people would associate flute with females and low brass with males.” If people saw a more diverse representation in performing ensembles, he said gender stereotypes would be different because it would prove that there are plenty of males and females who play each instrument, and also, people would realize that “it doesn’t matter what gender you are, you can still play the instrument; there’s no difference.” He couldn’t think of any other gender stereotypes other than these two examples.

Next, I asked if there were instruments that seemed to be more masculine or feminine than others. He said he could understand the perceptions of low brass instruments as being more masculine. They are bigger and require more physical strength, which makes sense with how men typically are bigger and stronger. I asked if his perception correlated with percussion, and he said percussion is more in the middle of the spectrum because playing percussion is more about technique than strength (I wish some of my former students understood that!). In his experience, trumpet players were more evenly split between male and female than low brass. He

felt that gender stereotypes were the result of persistent historical gender norms, similar to how men were expected to go find jobs while women were expected to stay home with kids.

When he was in sixth grade, he was in a class specifically for flute beginners. He was one of only four male students in the class of 20. He recalled that some of his peers would tease him about playing flute jokingly. There were hardly any other boys who played flute, "so of course they would make fun" of him. But he "knew they didn't really mean anything by it," so he didn't take it very seriously or let it affect him.

By the time he got to high school, he was the only male flute player at his school, and (to his knowledge) the only male flute player the school has ever had. He felt lucky that his sister, who was two years older, was already a band member. She introduced him to people, and he made friends quickly. His high school had approximately 130 students. He experienced far less teasing about his instrument choice when he was in high school. He felt like everyone was more mature because everyone who was still in the band wanted to be there. Although he was the only flute player in his high school, he had fun and stuck with it. In the university band, there were four other male flute players, and they have become his friends. He hasn't experienced or seen any negative interactions in the university band.

When he was asked if he had any advice for potential male flute players were are about to enroll in a band, he said, "I'll tell them if people tease them about it, don't take it seriously because in the end, if you want to pursue music and you believe you can be good at flute, just pursue it. It will be fun." He continued, "Of course, there's always going to be people that don't like each other, so there's always going to be somebody you disagree with. But even then, you still have your group of people you'll meet; you'll understand who they are and just have fun. I

feel like that is what music is in general: playing music that everybody enjoys, that challenges yourself, and just playing with the people that you love."

I asked if there was anything else he would like to add, and he offered the following advice to band directors: "If there's a student who wants to play a certain instrument, and they show some sort of natural proficiency with it, no matter if they're male or female, they should encourage them to play it." He confirmed that he believed band directors should allow students to embrace what they are most interested in because that will give students a sense that "this person is here to help me, not force me to do something that I don't want to do." One final thought was, "If there's a student wanting to try out for band, and their parents aren't so sure, let them know how the band has helped you as a person. Because for me, it has helped me find a place where I know I have people I can go to… if I need help with stuff, I can go to the people and just get help."

Sarah – Female Playing a Stereotypically Feminine Instrument

The third interview was with Sarah, who was in her third year at the university. She grew up in a rapidly developing suburban neighborhood in the northern region of the metropolitan area. She began playing the flute when she was in sixth grade, and she started playing piccolo at the beginning of 10th grade.

Like Lauren and Ron, Sarah made her decision the day her school allowed her to try out instruments. Her dad played tuba and percussion, initially her top two choices. However, she was unable to get a good sound on the tuba, so that was no longer an option. When she tried woodwind instruments, the band director said she "wasn't very good at flute," but clarinet would be a good fit. She remembered that her cousin played flute, and her family already had a flute in their garage. She was "super stubborn" and decided she wanted to play flute. I said, "That

stubbornness ended up working out for you because you clearly surpassed their expectations" (becoming one of the top flute players at the university). She clarified that she struggled to play the flute during her first year, but then she started private lessons, which made a big difference. She said one of the main factors in choosing flute was finances. Even at that young age, she was conscious of how her parents would try to save money. She knew instrument rentals were expensive, and the fact that they already had a flute would save a lot of money. She also thought the flute was a cool instrument that sounded pretty and was something that "could be heard." Her parents were very supportive of her instrument choice.

When asked if she felt there were gender stereotypes for band instruments, she said, "I think when I was younger, maybe more so, but now I think we're getting out of that more and more." She recalled she never met a male flute player until her senior year of high school, but she had a lot of female friends who played brass instruments. It was rare to see male clarinet players when she was younger, but now most of the clarinet players she knows are male. She was aware of the history of how flutes were originally played predominantly by males and pointed out the irony of how the gender stereotype for flutes was swapped so drastically. Anecdotally, she has seen an increasing number of male flute players in younger grade levels and thinks the distribution is becoming more equal. She believed flute and oboe were perceived as feminine, while tuba, trumpet, trombone, and euphonium were perceived as more masculine. She thought instruments perceived as relatively neutral were clarinet, saxophone, French horn, and bassoon. For percussion, she has observed that it is "definitely a more male-dominated field," but she feels like "the instrument itself is more gender-neutral because there are so many aspects of percussion that it's hard to group it into one thing."

Sarah theorized that instrument size and pitch range could be reasons for these perceptions, and she felt that these stereotypes could be observed and acted on subconsciously. She suggested that people have expectations based on what has traditionally happened, and people have a tendency to follow those expectations while subconsciously influencing others to do the same. She believed that seeing a more equal representation of male and female players would help lessen these gender stereotypes. She said as more people go against stereotypes, then "it seems like more of an acceptable thing. The more representation that occurs, the more comfortable it feels." She imagines that "it's probably uncomfortable being the only female tuba player… but I'm sure it makes younger kids feel like they can do the same thing, too" because it becomes easier to imagine themselves playing that instrument.

Her beginning flute class had 20 students, and all of them were female. During that first year, she knew male clarinet players who got bullied, and she had a female friend who played trumpet who was bullied too. However, when they got to seventh or eighth grade, no one seemed to care anymore. With help from her private lesson teacher in middle school, she became one of the top flute players in her program. Her high school band had around 200 students, and her band classmates became some of her best friends.

As Sarah reflected on her experience playing flute, she said, "I feel like a lot of musicians do this… I feel like we tie our self-worth to the level of our instrument because it's hard to separate your home life and your work life in this career because this is like all you do." She would place so much of her self-worth on her instrument, and the competition was so intense "that all their results were like a dice roll at that point." Shortly after starting at the university, she was devasted when she did poorly at a performance competition. Through that experience, she realized, "one performance is not an indication of who you are as a person." Understanding

that judging can be subjective helped her develop a healthier competitive mindset. Her shift in mindset helped with her preparation process, and she placed first in the competition the following year.

When asked what advice she would give to someone about to start learning flute, she said, “It’s really fun, but it is difficult, and you have to make sure that you always gain good habits and try not to develop any bad habits early on.” To follow up, I asked what advice she would give to someone considering an instrument that goes against their gender stereotype. She responded, “It doesn’t matter what anatomy you have as long as you can blow air into an instrument. You can play whatever instrument you want. For boys playing the flute… I would tell them that a lot of the best flute players are men. For girls playing the tuba… that’s just a cool thing to do.” For young band students who feel there are instrument stereotypes at their school, she suggested that they research “more than just their school or city,” because “going to band camps and branching out can really show that the stereotypes are a lot less common than most people think.”

Tyler – Male Playing a Stereotypically Masculine Instrument

The final interview was with Tyler, a freshman percussionist. He grew up in a large city neighborhood only a few miles from the university. In his school district, band classes were not offered until seventh grade, so that is when he started learning percussion. His dad played trumpet, and his mom played woodwind instruments.

The band instrument try-out event was the most important factor when deciding what instrument to play. He tried at least two brass instruments because he wanted to follow in his father’s footsteps. He recalled trying trumpet, trombone, and maybe tuba. However, he had a hard time getting enough air to make a good sound. Then he tried percussion, and “everything

just kind of clicked right away." He excelled at the rhythm and coordination exercises the band director asked him to do. That is when he knew he wanted to choose percussion. Additionally, he shared, "At the time, I was really getting into listening to some bands," and he became very interested in the drum set specifically. He didn't try any woodwind instruments that day. He said he "wasn't too interested in woodwinds" specifically because that's what his mom played. But he did say his mom influenced the type of music he enjoyed listening to. His parents were both very supportive of his decision to start percussion.

When asked if he felt like there were any gender stereotypes associated with band instruments, he said he had never really paid attention to that. He said he didn't have any reason to think that any particular instruments are masculine or feminine, and he added, "Everything's for everyone." However, he said it seems males are more expected to play percussion than females. There were between 20 and 30 percussionists in his beginner percussion class, and only two of them were female. However, a large number of percussionists ended up quitting, and only about 10 were left by his eighth-grade year. When he got to high school, he noticed how the battery (the group of marching percussionists) was almost entirely male, but the front ensemble was more evenly split. During years when they had a marching cymbal line, it was usually girls who played cymbals. Overall, he estimated that about 20-25% of the percussionists were female at his high school each year. However, he observed that the university band seemed to have slightly more females (around 30-35%).

Next, I asked how he felt about his school district starting band one year later than most other districts in the area. He said, "If I had that extra year in sixth grade, I probably would be like an extra level higher than I am today." The district made this change relatively recently; he

was not sure exactly when, but it was within the last 20 years. He assumed they stopped offering band classes for sixth graders because of budget cuts.

Tyler considered his time in the high school band the best four years of his life. He had so much fun and made so many friends. Although percussionists were responsible for learning all percussion instruments, he was more interested in mallet instruments like the marimba and vibraphone. He was a member of the front ensemble all four marching seasons.

Then I asked about his band teachers. Tyler had a fantastic percussion teacher during his seventh-grade year, who unfortunately left at the end of the school year. Tyler felt that the new percussion teacher was worse in many ways and shared that he "genuinely" believed if he had started with that teacher, he would not still be in the band today. However, that teacher only stayed for two years, and Tyler was so happy when his original teacher returned his sophomore year and stayed through the rest of his high school years.

As our conversation ended, he concluded, "I don't think it's right for anyone to judge based on instruments and gender. I think anyone should be able to play anything – whatever they want. They shouldn't have to be discouraged." Instead, he suggested that band directors should encourage people of different genders to try each instrument regardless of stereotypes. He theorized that having more equal numbers of males and females on each instrument would lessen gender stereotypes.

Finally, when he was asked if he had any advice for a beginner who was about to start playing percussion, he said, "Listen to the director, because they know best. If you're told to practice, definitely do so." Then he added, "I would tell them straight out of the gate that it is going to be a lot of work, but it is so worth it in the end."

Discussion and Conclusion

This research study investigated the gender associations of traditional American band instruments, focusing on the perceptions and experiences of university band students. The results from both phases of this study (the survey and the interview process) provided a wealth of information. Analysis of the survey uncovered how significantly different proportions of genders played each instrument, as previously seen in Table 1. On their own, these results indicate that males, females, and those who identify another way have been choosing significantly different instruments from each other. However, comparing these results with previous studies can put them into context and add additional meaning. Some of these significantly different proportions were aligned with the gender associations observed in previous studies, but there were some surprising differences (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992; Hallam et al., 2008). Most tuba, trombone, baritone/euphonium, trumpet, and percussion students were male, and most flute and oboe players were female. However, clarinet switched to the opposite side of the continuum, with 67% of players being male, while bassoon was found to be one of the most gender-neutral instruments. Additionally, previous studies found that percussion was the most masculine instrument of all, but the present study found percussion to be almost completely gender-neutral (with 55% males and 45% females). This was more neutral than the saxophone and French horn which both shifted towards the masculine side. These findings suggest that the representation of who plays what instrument can and does change, implying that efforts to improve the balance in sections could prove fruitful.

When participants shared the most important influences in choosing their primary instrument, the two most common responses were their experience at the instrument try-out event (n = 31) and the influence of their band director (n = 29). Together, these account for

nearly half of the responses (45%). Because band directors are directly responsible for facilitating the try-out event, this suggests that band directors have a much larger level of influence in the instrument selection process than many people realize. This implies that if band directors coordinate their efforts, they could work together to gradually help instrument representation become more diverse in their bands, regions, states, and beyond.

The survey results also revealed significant relationships relating to whether participants believed their instrument was played more by males or females. When compared with their primary instrument (as seen in Table 2), participants' instrument gender perceptions were mostly aligned with previously documented gender stereotypes (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992; Hallam et al., 2008). Compared to prior studies, however, it was surprising that most oboe, clarinet, and bassoon players perceived that an equal number of males and females played their instruments; prior studies would have us expect more females to play those instruments. Similarly, it was surprising that 75% of saxophone players (n = 9) perceived that more males played their instrument. In all four previous studies, saxophone was one of the two most gender-neutral instruments, along with French horn. When comparing participants' gender with their instrument gender perception (as seen in Table 3), it was found that males were significantly more likely to be playing an instrument they believed was played more commonly by males, and significantly less likely to be playing an instrument they believed was more commonly played by females. Similarly, females were significantly more likely than men to be playing an instrument that they believed was played more commonly by females. Because only 26% of participants (n = 35) believed that their instrument was played by an equal number of males and females, this suggests that the majority of band students are aware of gender

stereotypes. Additionally, this data provides evidence that people are more likely to select an instrument with a stereotype that matches their gender.

The next research question pertains to how the proportions of males and females playing specific band instruments have changed compared to the study by Fortney et al. (1993). The present study featured considerably higher percentages of males who played flute (12% higher) and clarinet (10% higher). The present study also featured considerably higher percentages of females who played percussion (27% higher) and (oboe (17% higher). These findings (excluding oboe) suggest that current students are more likely to go against gender stereotypes than in previous decades, especially since percussion, flute, and clarinet were historically three of the most gendered instruments (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). Yet, the percentages for the other seven instruments (tuba, French horn, trombone, baritone/euphonium, trumpet, bassoon, and saxophone) were similar in both studies.

Two challenges in comparing this study with the study by Fortney et al. (1993), though, were the overall difference in the male-to-female ratios and the present study's acknowledgment that some people do not identify as male or female. The previous study involved a population of 990 band students, of which 58.69% were male, and 41.31% were female. The current study's population (N = 134) was 61.19% male (n = 82), 31.34% female (n = 42), and 7.46% who identified in some other way (n = 10). These numbers indicate a much smaller percentage of females overall in the present study. Allowing participants to identify themselves beyond the gender binary correlated with considerable differences in percentages for flute (28% fewer females), bassoon (27% fewer females), and saxophone (14% fewer males). However, one major similarity between the two studies is that band programs still seem predominantly male.

When participants were asked about what they would say to their hypothetical fifth-grade sons and daughters, the results were encouraging: 97% of participants had a positive or neutral response to their daughter expressing an interest in playing a low brass instrument, and 91% had a positive or neutral response to their son expressing an interest in playing the flute. Compared to the findings by Cramer et al. (2002), it was unfortunately not surprising that the male flute player was treated more harshly. The son received 12 negative responses and 22 neutral responses compared to the daughter's 4 negative responses and 20 neutral responses.

When analyzing and comparing the results of the interviews, multiple emerging themes were identified. The one that stood out to me the most as I conducted the interviews was the theme of representation. All four interviewees believed that gender stereotypes could be lessened if people saw more examples of males and females who played each instrument. As Sarah said, as more people go against gender stereotypes, it becomes easier and more comfortable for other people to make the same choice. The next theme was the power of instrument try-out events. All four interviewees did not know what instrument they were going to play until they tried out instruments with their band directors. That leads me to the third theme: the importance of good teachers. As Lauren said, some of the teachers who facilitated different instrument booths seemed grumpier than others, and this seemed to suggest that the disposition and attitude of the teachers affected how excited she was about the instruments they presented. Lauren, Sarah, and Tyler expressed how having caring, passionate music teachers inspired them to work hard, always to keep trying, and to ultimately develop their own passion for music. They all appreciated their time in their band programs, acknowledged their growth, and recognized the lasting, positive impact that being a part of the band had on them. Finally, they all had heartfelt

advice to give to future music students, and they had a strong desire to share their joy of music with others.

References

Abeles, H. F., & Porter, S. Y. (1978). The sex-stereotyping of musical instruments. *Journal of Research in Music Education, 26*(2), 65-75. https://doi-org.ezproxy.uta.edu/10.2307/3344880

Abeles, H. (2009). Are musical instrument gender associations changing? *Journal of Research in Music Education, 57*(2), 127-139. https://doi-org.ezproxy.uta.edu/10.1177/0022429409335878

Bergee, M. J., Demorest, S. M. (2003). Developing tomorrow's music teachers today. *Music Educators Journal, 89*(4), 17-20. https://doi.org/10.2307/3399899

Bhat, A. (n.d.). *Eliminate order bias in surveys with question randomization.* QuestionPro. Retrieved March 24, 2024, from https://www.questionpro.com/blog/eliminate-order-bias-in-surveys-with-question-randomization/

Brittanica Dictionary. (2024, April 12). Stereotype. https://www.britannica.com/dictionary/stereotype

Conway, C. (2000). Gender and musical instrument choice: A phenomenological investigation. *Bulletin of the Council for Research in Music Education*, *146*, 1-17. http://www.jstor.org/stable/40319030

Cooper, P. K., & Burns, C. (2021). Effects of stereotype content priming on fourth and fifth grade students' gender-instrument associations and future role choice. *Psychology of Music, 49*(2), 246-256. https://doi-org.ezproxy.uta.edu/10.1177/0305735619850624

Cramer, K. M., Million, E., & Perreault, L. A. (2002). Perceptions of musicians: Gender stereotypes and social role theory. *Psychology of Music, 30*(2), 164-174. https://doi-org.ezproxy.uta.edu/10.1177/0305735602302003

Delzell, J. K., & Leppla, D. A. (1992). Gender association of musical instruments and preferences of fourth-grade students for selected instruments. *Journal of Research in Music Education*, *40*(2), 93-103. https://doi.org/10.2307/3345559

Diamond, L. M. (2020). Gender fluidity and nonbinary gender identities among children and adolescents. *Child Development Perspectives, 14*(2) 110-115. https://doi-org.ezproxy.uta.edu/10.1111/cdep.12366

Fortney, P. M., Boyle, J. D., & DeCarbo, N. J. (1993). A study of middle school band students' instrument choices. *Journal of Research in Music Education*, *41*(1), 28-39. https://doi.org/10.2307/3345477

Garrett, M. L. (2012). The LGBTQ component of 21st-century music teacher training: Strategies for inclusion from the research literature. *Update: Applications of Research in Music Education, 31*(1), 55-62. https://doi-org.ezproxy.uta.edu/10.1177/8755123312458294

Griswold, P. A., & Chroback, D. A. (1981). Sex-role associations of music instruments and occupations by gender and major. *Journal of Research in Music Education*, *29*(1), 57-62. https://doi.org/10.2307/3344680

Hallam, S., Rogers, L., & Creech, A. (2008). Gender differences in musical instrument choice. *International Journal of Music Education, 26*(1), 7-19. https://doi-org.ezproxy.uta.edu/10.1177/0255761407085646

Harrison, A. C., & O'Neill, S. A. (2000). Children's gender-typed preferences for musical instruments: An intervention study. *Psychology of Music*, *28*(1), 81-97. https://doi-org.ezproxy.uta.edu/10.1177/0305735600281006

Keeter, S. & Brown, A. (2024, February 12). *Who are you? The art and science of measuring identity*. Pew Research Center. https://www.pewresearch.org/methods/2024/02/12/who-are-you-the-art-and-science-of-measuring-identity/

Marshall, N. A., & Shibazaki, K. (2012). Instrument, gender and musical style associations in young children. *Psychology of Music, 40*(4), 494-507. https://doi-org.ezproxy.uta.edu/10.1177/0305735611408996

O'Neill, S. A., & Boulton, M. J. (1996). Boys' and girls' preferences for musical instruments: A function of gender? *Psychology of Music, 24*(2), 171-183. https://doi-org.ezproxy.uta.edu/10.1177/0305735696242009

Phillips, K. H. (2008). *Exploring research in music education and music therapy.* Oxford University Press.

Pope, D. A., & Mick, J. P. (2018). How positive festival results impact a music program. *Music Educators Journal, 105*(1), 33-38. https://doi.org/10.1177/0027432118792071

Rawlings, J. R., & Espelage, D. L. (2020). Middle school music ensemble participation, homophobic name-calling, and mental health. *Youth & Society, 52*(7), 1238-1258. https://doi-org.ezproxy.uta.edu/10.1177/0044118X19866071

Schmidt, P. (2020). Making policy work for us: Changing the way music educators look at policy. *Music Educators Journal, 107*(1), 20-23. https://doi.org/10.1177/0027432120945121

Shin, H., & Ryan, A. M. (2017). Friend influence on early adolescent disruptive behavior in the classroom: Teacher emotional support matters. *Developmental Psychology, 53*(1), 114-125. https://doi.org/10.1037/dev0000250

Sinsabaugh, K. (2005). *Understanding students who cross over gender stereotypes in musical instrument selection* (Order No. 3175728). Available from ProQuest Dissertations & Theses Global. (305012691). https://login.ezproxy.uta.edu/login?url=https://www.proquest.com/dissertations-theses/understanding-students-who-cross-over-gender/docview/305012691/se-2

Stronsick, L. M., Tuft, S. E., Incera, S., & McLennan, C. T. (2018). Masculine harps and feminine horns: Timbre and pitch level influence gender ratings of musical instruments. *Psychology of Music, 46*(6), 896-912. https://doi-org.ezproxy.uta.edu/10.1177/0305735617734629

Twenge, J. M. (2023, May 1). How Gen Z changed its views on gender. *Time*. https://time.com/6275663/generation-z-gender-identity/

Wrape, E. R., Dittloff, A. L., & Callahan, J. L. (2016). Gender and musical instrument stereotypes in middle school children: Have trends changed? *Update: Applications of Research in Music Education, 34*(3), 40-47. https://doi.org/10.1177/8755123314564255

Chapter 4 Appendix A: IRB Approval Letter

UNIVERSITY OF TEXAS ARLINGTON | OFFICE OF RESEARCH ADMINISTRATION
REGULATORY SERVICES

12/11/2023

IRB Approval of Minimal Risk (MR) Protocol

PI: Kevin Merkel
Faculty Advisor: John Wayman
Department: Music
IRB Protocol #:2024-0096
Study Title: *Gender Associations of American Band Instruments: Exploring the Perceptions of College Band Students*
Effective Approval: 12/11/2023

Protocol Details

- Original Protocol Approval Date: 12/11/2023

The IRB has approved the above referenced submission in accordance with applicable regulations and/or UTA's IRB Standard Operating Procedures. The IRB team has reviewed and approved this non-federally funded, non-FDA regulated protocol in accordance with the UTA IRB Internal Operating Procedures. The study is approved as Minimal Risk.

Principal Investigator and Faculty Advisor Responsibilities

All personnel conducting human subject research must comply with UTA's IRB Standard Operating Procedures and RA-PO4, Statement of Principles and Policies Regarding Human Subjects in Research. Important items for PIs and Faculty Advisors are as follows:

- **Notify Regulatory Services of proposed, new, or changing funding source**
- Fulfill research oversight responsibilities, IV.F and IV.G.
- Obtain approval prior to initiating changes in research or personnel, IX.B.
- Report Serious Adverse Events (SAEs) and Unanticipated Problems (UPs), IX.C.
- Fulfill Continuing Review requirements, if applicable, IX.A.
- Protect human subject data (XV.) and maintain records (XXI.C.).
- Maintain HSP (3 years), GCP (3 years), and RCR (4 years) training as applicable.

Chapter 4 Appendix B: University Band Music Survey

10. What is your age?

_____

11. Do you describe yourself as a man, a woman, or in some other way?

- o A man
- o A woman
- o Other

12. Which band class do you attend?

- o Wind Symphony
- o Symphonic Winds
- o Symphonic Band

13. What is the primary instrument that you play in your band class?

_____

14. Is this the same instrument that you started in Beginner Band? If not, please explain.

_____

_____

15. How did you decide what instrument to play? What influenced your decision?

_____

_____

16. Do you feel like your instrument is played more by males or females?

- o More males play my instrument.
- o More females play my instrument.
- o An equal number of males and females play my instrument.

17. Imagine you have a 5th-grade daughter who is about to start band class. What would you say to her if she expressed an interest in playing a low brass instrument?

_____

_____

18. Imagine you have a 5th-grade son who is about to start band class. What would you say to him if he expressed an interest in playing the flute?

_____

_____

19. Would you be willing to be contacted for a short interview to answer some follow-up questions? (If selected, you will be contacted within 7 days to set up a time and location that works for you. Please note there is a possibility you will not be selected).
    - Yes
    - No
20. If you are open to an interview, please share your contact information below:

_____

Chapter 4 Appendix C: Interview Questions/Prompts

1. What is the primary instrument that you play? Do you play any other instruments?
2. How long have you been playing the instrument(s)?
3. What was the instrument selection process like for you when you were getting ready to start Beginner Band?
4. What were the factors that influenced the decision for you to start learning your primary instrument?
5. How did your parents or guardians feel about your instrument choice?
6. Do you feel like there are gender stereotypes for band instruments?
7. What are some examples of gender stereotypes for instruments that you can think of?
8. Are there particular instruments that stand out to you as being masculine or feminine? Are there instruments that you consider gender-neutral?
9. Where do you think gender stereotypes come from?
10. Please describe your experience of being a band student as a _____ player. Sample follow-up questions: How would you describe the size of the middle school and high school band programs you were a part of? Were these schools rural, suburban, or urban? What were interactions like with your classmates in middle school? In high school? In college? What were interactions like with your music teachers?
11. How has your experience as a band student changed over time?

CHAPTER 5

GENERAL DISCUSSION AND CONCLUSION

This collection of studies explored the instrument gender associations of three different age groups (adults, seventh- and eighth-grade band students, and university band students), and there are many important similarities and differences when comparing the perceptions of these groups. My findings will especially be of interest to music educators and current and former music students. However, anyone who knows someone who currently, or potentially will be in a band program could benefit from this research.

The seventh- and eighth-grade study's results provided an updated order of instrument gender associations. The order, from most feminine to most masculine, was flute, clarinet, oboe, French horn, saxophone, bassoon, percussion, trumpet, trombone, baritone/euphonium, and tuba. As seen in Table 1, this order of instrument perceptions is compared with the percentages of males and females who played each instrument. Several other examples of instrument gender data comparisons can be found in Table 1, such as the university bands' percentages of males and females who played each instrument, adults' most selected first-choice instruments, and adults' most selected instruments overall. There are some consistencies in the data, with the clearest commonality being the perception that flute and oboe were feminine, higher numbers of females played those instruments, and adults preferred for their daughters to play them. On the opposite side of the spectrum, the pattern was less clear. Trombone and baritone/euphonium seemed to have the most consistencies between studies, including the perception that they are masculine, higher numbers of males played those instruments, and adults preferred their sons to play them.

Table 1

Cross-study Comparisons of Instrument Gender Data

Order of 7th- and 8th-grade band students' perceptions from most feminine to most masculine										
flute	clarinet	oboe	F. horn	sax	bassoon	perc.	trumpet	tromb.	baritone	tuba
Order of 7th- and 8th-grade band instrument demographics, from highest percentage of female players to lowest percentage										
flute	oboe	clarinet	F. horn	sax	tromb.	trumpet	perc.	tuba	bassoon	baritone
Order of university band instrument demographics, from highest percentage of female players to lowest percentage										
oboe	flute	perc.	bassoon	F. horn	sax	clarinet	baritone	trumpet	tromb.	tuba
Order of university band instrument demographics, from lowest percentage of male players to highest percentage										
oboe	flute	bassoon	perc.	sax	F. horn	clarinet	trumpet	baritone	tromb.	tuba
Adult's most to least selected first-choice instrument for hypothetical daughters										
perc.	clarinet	flute	F. horn	oboe	sax	trumpet*	tromb.*	bassoon	baritone	tuba
Adult's most to least selected instruments for hypothetical daughters overall										
clarinet	F. horn	flute	oboe	perc.	sax	trumpet	bassoon	tromb.	baritone	tuba
Adult's least to most selected first-choice instruments for hypothetical sons										
tuba*	flute*	oboe	bassoon*	clarinet*	baritone	tromb.	F. horn	sax	trumpet	perc.
Adult's least to most selected instruments for hypothetical sons overall										
tuba	flute	oboe	baritone	bassoon	clarinet	tromb.	F. horn	sax	trumpet	perc.

Note. The asterisk (*) indicates a tie between two instrument counts.

All of the other instruments were very mixed. While tuba was perceived as masculine and played mostly by males, it was actually the instrument adults preferred least for their sons to play. The clarinet was played more by younger female students, but more older male students played the instrument, and adults preferred it about the same for sons and daughters. Percussion was especially surprising because it has historically been perceived as the most masculine instrument (Abeles, 2009; Abeles & Porter, 1978; Delzell & Leppla, 1992). The present results have percussion in a different column in seven out of eight categories (including both extremes).

These discrepancies between adult preferences, the perceptions of band students, and the realities of instrument demographics suggest that these three concepts are not as intricately linked as many would expect. If adults prefer so strongly that their daughters play percussion, why are there so few female percussionists? Since a higher percentage of older female students were percussionists than younger students, it could be argued that female beginners are not any likelier to choose percussion now than 5-8 years ago. However, one commonality between all three studies is that percussion was viewed as far less gendered than previous studies.

Additionally, the discrepancies between perceptions of the three age groups show that these data points are flexible and demonstrate that perceptions, preferences, and demographics of who plays what instrument can change. The seventh- and eighth-grade study provided strong evidence to support this. There were several cases where one student who defied gender expectations was able to significantly alter how other students in their class and school perceived the instrument. Furthermore, all four interviewees agreed that instrument stereotypes could be lessened if people saw more diverse representations of people who play them. Some of the interviewees in Conway's study (2000) also shared this belief.

Although parental influence, societal expectations, and gender stereotypes can be powerful forces, the actual distributions of instrument demographics are not consistently aligned with them. It seems as though other influences may actually play a more important role in the instrument selection process overall. One is an individual's interest or desire to learn a particular instrument. As evidence, the university survey found that over 90% of participants would react positively if their child expressed an interest in wanting to play an instrument that was not typical for their gender. The influence of band directors also plays an important role. As discovered during the university survey and interviews, teachers can be extremely influential when steering

students toward instruments that best suit each individual during instrument try-out events. Teacher expertise is important because if students start an instrument they are well suited for, they will be likelier to stay in the band program long-term. This incentive creates a win-win scenario for student satisfaction as well as the success of the band program overall.

Unfortunately, not all aspects of the findings were pleasant. The university study uncovered alarming real-life examples of gender threat during the interview process (Oliver et al., 2023; Watson, 2023). Three out of four interviewees personally witnessed students being bullied or teased because they chose an instrument that was atypical of their gender (Garrett, 2020; Rawlings & Espelage, 2020). Ron (a male who played flute) personally experienced harassment during his middle school years because of his instrument choice. Lauren (a female who played euphonium) experienced prejudice and discrimination from her male peers throughout high school; after earning a leadership role, her male peers treated her with disrespect because she was the only female in the section. While these are only a few examples of mistreatment, I have anecdotally seen and heard stories of similar and worse experiences. This shows how important it is for teachers, parents, and classmates to be vigilant of what is happening around them, to be supportive of others, and to encourage and facilitate positive interactions to foster a sense of belonging. Additionally, this highlights the importance and relevance of gender research in music education because of its real-life implications.

A different example of gender threat was related to the band member attrition rates described by the interviewees (Oliver et al., 2023; Watson, 2023). Ron was in a beginner flute class with three male peers, but they had all quit the band by Ron's freshman year. While he was in high school, he was the only male flute player at the school all four years. Similarly, Lauren started with three other females in her low brass class, but they all quit before high school was

over. She had developed a close friendship with them and was saddened that they left. In the context of gender threat, perhaps being a minority within a section made these students feel like they didn't belong, and maybe that is what led them to quit. As Lauren experienced, once classmates start quitting, it can make the ones who remain feel even more alienated. Fortunately, things have gotten better for her. After graduating high school, she started attending a university where the other band members have made her feel welcome, appreciated, and valued.

Research Design Reflection

If I were to conduct this research again, I would do a few things differently. First, I would want to cast a wider net for the adult survey to reach a larger and more diverse population. Due to the accelerated timeline of completing multiple studies within a specific timeframe, my realistic goal was to achieve a minimum of 100 completed survey responses for the adult survey. I was encouraged by how quickly responses came in and was very satisfied with the final result (N = 184). However, the distribution of participants based on gender was very uneven, with almost twice as many females (n = 118) than males (n = 64). Additionally, the survey population may be skewed toward a larger concentration of highly-trained musicians than exists in the general population. One reason for this is my personal background as a musician and music educator; many of my family members, friends, and colleagues are musicians or have musical backgrounds. Aside from sharing the survey with my personal contacts, I also shared a survey link on three music-focused Facebook pages catered to instrumental and choral musicians. Overall, having a larger number of participants would theoretically even out demographic ratios, making the results more reflective of the general population. One strategy for achieving this would be to enlist the help of others with diverse backgrounds to actively recruit people from their social circles to participate. Another idea would be to recruit participants near high-traffic

public spaces, such as grocery stores, shopping malls, gyms, farmers' markets, school athletic events, community events, and so on. It also could be effective to coordinate with leaders of churches, chambers of commerce, Parent/Teacher Associations (PTA), or other groups to share a link at the end of meetings or in online newsletters. Methods such as these could potentially reach large numbers of diverse populations.

Another change I would implement for the adult survey would be to allow participants to elaborate on why they selected specific instruments for their hypothetical sons and daughters. Some respondents preferred the same three instruments in the same order for both children and some preferred three different instruments for each child. However, many participants had various combinations of answers, (e.g., the first choice being the same for both, but then preferring different second and third choices). In my opinion, the most unusual combinations were when participants chose the same instruments for each child but placed them in different orders of preference. Was this intentional, did they accidentally select an unintended instrument, or did they forget the order they selected in the previous questions? Allowing participants to explain their choices would allow a greater understanding of their perceptions and preferences.

If I were to conduct the seventh- and eighth-grade study again, I would want to expand the scope to incorporate more school band programs. I expect that doing so would provide more generalizable results and allow observation of larger trends happening at multiple schools simultaneously. One challenge with comparing the two participating schools was the fact that School A served grades 6-8, while School B only served grades 7-8. Moreover, I was surprised that School B's school district recently stopped offering band classes for sixth graders (they previously had band classes for sixth graders at the feeder elementary schools). Because most of the seventh-grade band students at that school were in beginner classes, hardly any seventh-grade

students were eligible to participate in the study. This severely limited the ability to compare between the schools based on grade level. Therefore, in a future research study, I would compare a larger number of similar-type schools or an even number of each.

The design of this study had a few distinct differences compared to the other two, but one that is particularly relevant to the overall topic of gender. This study utilized a paper survey intended for children attending public schools. Because of the recent controversy and political discourse surrounding the discussion of all aspects of gender (including sexual orientation and gender identity) in American schools, I was reluctant to include an option allowing students to identify as something other than male or female on the survey. However, the design did include a neutral option on the rating scales so participants could voice a nonbinary perception for instruments instead of being forced to choose masculine or feminine as many previous studies did. Since my adult and university studies utilized electronic surveys catered toward adults, I felt comfortable including the option for those studies. In the adult survey, two participants (1.09%) described themselves as something outside the gender binary, and 10 participants (7.68%) did in the university study (Twenge, 2023). These percentages are congruent with recent societal trends showing that young adults are far more likely to identify as nonbinary (Diamond, 2020).

Two notable interactions occurred when I was recruiting potential band directors to have their bands participate. The first band director I spoke with was enthusiastic and eager to have her bands participate. She taught at a middle school in a large suburban district, home to multiple high school bands that consistently rank among the best in the state. As I followed up with the principal later, I discovered that research proposals were handled at the district level. After completing and submitting the application, it took 28 days to be processed, only to find that my

minimal-risk study could not be conducted in the district "as it requires student participation." As a result, this director's bands were unable to participate.

The other notable interaction was with a different band director who said that, for years, he has been carefully cultivating a culture in his program that all instruments are for anyone. He said he has many students who play instruments atypical of their gender, and these students have been enjoying themselves and having consistently positive interactions with their peers. He was apprehensive about students participating in a survey that would bring attention to instrument gender associations. He was afraid that asking students to think about whether they perceive instruments as masculine, feminine, or neutral could actually create new problems with stereotypes, prejudice, and discrimination in his program that he has been intentionally working to diminish. This is a fascinating dilemma that certainly needs consideration when planning new research methods. Instead of making students choose which instrument is more masculine than another, which instruments are "for" boys or girls, or which instruments boys or girls "should not" play (Abeles, 2009; Abeles & Porter, 1978; Cooper & Burns, 2019; Cramer et al., 2002; Delzell & Leppla, 1992; Griswold & Chroback, 1981; Harrison & O'Neill, 2000; Marshall & Shibazaki, 2020; Marshall & Shibazaki, 2012; O'Neill & Boulton, 1996; Stronsick et al., 2017; Wrape et al., 2016), I innovated by using a Likert scale that featured a neutral option. However, as that band director pointed out, there is a possibility that simply bringing up the topic of gender associations with children could unintentionally result in them developing or strengthening negative perceptions of gender stereotypes. Therefore, if I were to do a similar study with this age group again (or younger), one possible solution would be to design a study that frames the topic in a positive light. For example, one research question could be, "What are the three coolest instruments for a girl to play?" If they answer the same when asked about instruments for boys,

then it suggests that gender is not factoring into their decision. Analysis of results by gender and primary instrument would reveal fascinating details on how they perceive their primary instrument (e.g., do they think it is a cool instrument for others of their gender to play, do they think it is cool for both genders to play, are there trends in how gender stereotypes play into these choices, and so on).

If I were to conduct the university band study again, I would want to interview more students. The research design was built on comparing perceptions and experiences between students with differing characteristics relevant to the research. The four interviewees included one self-identified male and female whose primary instrument matched their gender stereotype and one self-identified male and female whose primary instrument did not match their gender stereotype. With four interviewees, there were several similarities in their perceptions, observations, and experiences, despite their demographic differences. However, one advantage to having more interviewees is that it would potentially provide more support to validate the emerging trends observed throughout the process. Interviewing four or eight more participants (while maintaining an equal number from each category) would be ideal. Doing so would allow more comparisons between students in similar situations and comparisons between students in the other categories.

Suggestions for Future Research

As a result of my research, I would suggest further research to investigate band programs with a history of successfully minimizing the effects of instrument gender stereotypes. It would be greatly beneficial to interview band directors to discover which communications and strategies have proven effective in cultivating an environment of safety, acceptance, diversity, and inclusion in their programs. These discussions would offer invaluable tools for improving

band programs and providing a better experience for students. Additionally, these discussions could answer the debate about whether it is better to recognize and embrace differences, or if it is better to deemphasize differences and focus on commonalities. I would also recommend further research to qualitatively investigate why people perceive instruments the way they do, and what has affected or influenced their perceptions. Understanding where these perceptions come from would provide useful insight into how music educators can address instrument discussions and the effects of gender stereotypes. I would suggest that similar studies are done in the future to verify to what extent the trends observed in the present study may be changing or remaining constant. Other than data about gender perceptions, there were several demographic details collected for each age group. One concerning trend was that the younger (66%) and older (67%) band student populations were heavily skewed toward being predominantly male. Is this a trend that is common in most band programs? Investigating this would be worthwhile to allow band directors to reassess their recruiting processes and evaluate how they approach communications with various subpopulations.

To truly find the state of gender associations and trends in the distribution of who plays what instrument, it will require a larger scope and a coordinated effort among music educators. Wide-scale surveys would be useful in obtaining a comprehensive understanding of what band programs look like today. One recommendation would be for a large music organization at the state or national level to create an initiative for a music education census scheduled at consistent, regular intervals. This would allow music educators to understand the populations of music students today, while also allowing for an analysis of how these populations change in the decades to come. This would have far-reaching implications for how to improve education. A consistent music census would offer useful information regarding many key areas, such as how

to improve diversity, equity, and inclusion initiatives, how to differentiate instruction more effectively, how to make learning more culturally relevant, how to improve recruiting processes, how to address retention and attrition rates, and so on. If something like this were implemented on a large scale, it could lead to thoughtful discourse among educators and inspire a movement for lasting, positive change.

Conclusion

This collection of studies demonstrated that instrument gender perceptions and stereotypes can change. Additionally, the results suggest that intentional efforts from band directors, adults, and peers can reduce the harmful effects of gender stereotypes, prejudice, and discrimination. Familiarity with trends regarding gender stereotypes is essential for band directors to know how to establish and maintain an inclusive learning environment and facilitate positive interactions. This awareness can provide teachers with a better understanding of how to support their students and help individuals feel welcome and comfortable to learn and grow, regardless of what instrument they play.

References

Abeles, H. F., & Porter, S. Y. (1978). The sex-stereotyping of musical instruments. *Journal of Research in Music Education, 26*(2), 65-75. https://doi-org.ezproxy.uta.edu/10.2307/3344880

Abeles, H. (2009). Are musical instrument gender associations changing? *Journal of Research in Music Education, 57*(2), 127-139. https://doi-org.ezproxy.uta.edu/10.1177/0022429409335878

Conway, C. (2000). Gender and musical instrument choice: A phenomenological investigation. *Bulletin of the Council for Research in Music Education*, *146*, 1-17. http://www.jstor.org/stable/40319030

Cooper, P. K., & Burns, C. (2021). Effects of stereotype content priming on fourth and fifth grade students' gender-instrument associations and future role choice. *Psychology of Music, 49*(2), 246-256. https://doi-org.ezproxy.uta.edu/10.1177/0305735619850624

Cramer, K. M., Million, E., & Perreault, L. A. (2002). Perceptions of musicians: Gender stereotypes and social role theory. *Psychology of Music, 30*(2), 164-174. https://doi-org.ezproxy.uta.edu/10.1177/0305735602302003

Delzell, J. K., & Leppla, D. A. (1992). Gender association of musical instruments and preferences of fourth-grade students for selected instruments. *Journal of Research in Music Education*, *40*(2), 93-103. https://doi.org/10.2307/3345559

Diamond, L. M. (2020). Gender fluidity and nonbinary gender identities among children and adolescents. *Child Development Perspectives, 14*(2) 110-115. https://doi-org.ezproxy.uta.edu/10.1111/cdep.12366

Garrett, M. L. (2012). The LGBTQ component of 21st-century music teacher training: Strategies for inclusion from the research literature. *Update: Applications of Research in Music Education, 31*(1), 55-62. https://doi-org.ezproxy.uta.edu/10.1177/8755123312458294

Griswold, P. A., & Chroback, D. A. (1981). Sex-role associations of music instruments and occupations by gender and major. *Journal of Research in Music Education*, *29*(1), 57-62. https://doi.org/10.2307/3344680

Harrison, A. C., & O'Neill, S. A. (2000). Children's gender-typed preferences for musical instruments: An intervention study. *Psychology of Music*, *28*(1), 81-97. https://doi-org.ezproxy.uta.edu/10.1177/0305735600281006

Marshall, N., & Shibazaki, K. (2020). Gender associations and musical instruments: Understanding the responses of nursery-aged children. *Educational Research*, *62*(4), 455-473. https://doi-org.ezproxy.uta.edu/10.1080/00131881.2020.1836988

Marshall, N. A., & Shibazaki, K. (2012). Instrument, gender and musical style associations in young children. *Psychology of Music, 40*(4), 494-507. https://doi-org.ezproxy.uta.edu/10.1177/0305735611408996

Martin, A. E., & Mason, M. F. (2022). What does it mean to be (seen as) human? The importance of gender in humanization. *Journal of Personality and Social Psychology.*, *123*(2), 292–315. https://doi.org/10.1037/pspa0000293

Oliver, A., Gomez, B. N., Milless, K. L., Godbole, M., & Good, C. (2023). Stereotype threat. In Watson, P.W.S.J., Rubie-Davies, C.M., & Ertl, B. (Eds.). *The Routledge International Handbook of Gender Beliefs, Stereotype Threat, and Teacher Expectations* (1st ed.) (pp. 81-92). Routledge. https://doi-org.ezproxy.uta.edu/10.4324/9781003275763

O'Neill, S. A., & Boulton, M. J. (1996). Boys' and girls' preferences for musical instruments: A function of gender? *Psychology of Music, 24*(2), 171-183. https://doi-org.ezproxy.uta.edu/10.1177/0305735696242009

Rawlings, J. R., & Espelage, D. L. (2020). Middle school music ensemble participation, homophobic name-calling, and mental health. *Youth & Society, 52*(7), 1238-1258. https://doi-org.ezproxy.uta.edu/10.1177/0044118X19866071

Spencer, L. G. (2021). Pink and blue in a yellow box: National Geographic's special issue on gender identity. *The Quarterly Journal of Speech*, *107*(3), 261-283. https://doi.org/10.1080/00335630.2021.1945134

Stronsick, L. M., Tuft, S. E., Incera, S., & McLennan, C. T. (2018). Masculine harps and feminine horns: Timbre and pitch level influence gender ratings of musical instruments. *Psychology of Music, 46*(6), 896-912. https://doi-org.ezproxy.uta.edu/10.1177/0305735617734629

Twenge, J. M. (2023, May 1). How Gen Z changed its views on gender. *Time*. https://time.com/6275663/generation-z-gender-identity/

Watson, P. W. S. J. (2023). Stereotype threat research in real-world gendered contexts. In Watson, P.W.S.J., Rubie-Davies, C.M., & Ertl, B. (Eds.). *The Routledge International Handbook of Gender Beliefs, Stereotype Threat, and Teacher Expectations* (1st ed.) (pp. 93-104). Routledge. https://doi-org.ezproxy.uta.edu/10.4324/9781003275763

Wrape, E. R., Dittloff, A. L., & Callahan, J. L. (2016). Gender and musical instrument stereotypes in middle school children: Have trends changed? *Update: Applications of Research in Music Education, 34*(3), 40-47. https://doi.org/10.1177/8755123314564255