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The Effect of Photovoice on Teaching Research to Counseling Students at a Hispanic-Serving Institution

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Abstract

The current study examined the effectiveness of a photovoice project in teaching research to counselors-in-training at a Hispanic-serving institution (HSI). Analysis of 36 pre- and post-survey responses via paired sample t-tests revealed reduced research anxiety and enhanced self-efficacy in research conceptualization, implementation, and presentation. Specific implications for counselor educators and researchers are discussed.

Significance to the Public

Photovoice is an innovative approach to teaching counseling students. This study examined the effectiveness of photovoice in teaching research to master-level counseling students at a Hispanic-serving institution. Students who joined the photovoice project demonstrated reduced research anxiety and enhanced self-efficacy in research conceptualization, implementation, and presentation.

Keywords: photovoice, research training, research self-efficacy, counselor-in-training

Professional counselors work in a domain that encompasses both science and art (Zeglin et al., 2019), which implies clinicians need to practice based on research evidence. According to the professional code of ethics (American Counseling Association, 2014), counselors are responsible for using counseling practices that are grounded in rigorous research methodology. In this regard, the counseling profession has recognized the critical role of research in assisting and guiding counselors' clinical work (Jorgensen & Umstead, 2020; Minton & Lenz, 2019; Peterson et al., 2016). However, training related to research has primarily focused on doctoral-level students who are future counselor educators and researchers (e.g., Borders et al., 2020; Lamar et al., 2019; Limberg et al., 2020; Petko et al., 2020; Wang et al., 2022).

The focus on research training for doctoral-level students left a gap in studies on the research interest and efficacy of counselors-in-training (CITs), who

are master's-level students (Jorgensen & Duncan, 2015; Jorgensen & Umstead, 2020; Steele & Rawls, 2015). Previous studies on research-related identity among CITs pointed out that the counseling profession did not pay enough attention to teaching research for master's-level students (Jorgensen & Duncan, 2015; Steele & Rawls, 2015). The lack of interest and low scores were reasonable given the master's-level students' developmental stage. However, it is still concerning, given the ethical mandate of adopting evidence-based practice and the required competence to utilize research in counselors' practice. Further, the trends in research training across various disciplines, including but not limited to science, technology, engineering, and mathematics (STEM) fields, recognized the importance of early research experience (Brownell et al., 2015; Cooper et al., 2023), extending to include undergraduate or master's-level students.

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In addition to considering the developmental stage of students, it is crucial to take into account historical marginalization in higher education (Liou et al., 2023; Monarrez et al., 2024). As the counseling profession has evolved to address issues of multiculturalism and social justice (Lee, 2019; Ratts & Pedersen, 2014), it is warranted to raise the historically silent voices and use innovative educational tools (Zeglin et al., 2019). Learning research was usually accompanied by high anxiety among students (Papanastasiou & Zembylas, 2008), and particularly, historically marginalized students such as Latine students suffered self-defeating messages (Davis & Museus, 2019). Thus, understanding the efficacy of a specific educational tool will help counselor educators choose appropriate educational methods.

As discussed next, the need for research education on CITs (master's-level students) and a deeper understanding of research interest and efficacy among students in a Hispanic-serving institution (HSI) led to the implementation of an innovative photovoice project.

Educating Counselors-in-Training on Research

The ACA code of ethics (2014) indicates research should be integrated into clinical practice to facilitate informed decision-making in the era of accountability (Jorgensen & Umstead, 2020; Minton & Lenz, 2019). Specifically, the code of ethics emphasizes the use of evidence-based treatment and interventions and ongoing evaluation of counseling effectiveness. The professional standard for counselor education also emphasizes that counselors need to understand research methods and analysis (Council for Accreditation of Counseling and Related Educational Programs [CACREP], 2015). In other words, counselors are responsible for reading current research to apply the findings in their clinical works.

Despite the rationale of integrating research into clinical practice, developing research competency was not a popular area for CITs. In a few studies, researchers found that some CITs felt left out of

research opportunities because they believed that research was mainly reserved for students in doctoral programs (Jorgensen & Duncan, 2015). Also, previous studies demonstrated that some master's-level students perceived the narrow definitions of research and the visual representation of a scientist as something that was “not me at all” (Jorgensen & Duncan, 2015, p. 331). Steele and Rawls (2015) conducted a study to investigate how master's-level counseling students perceived their readiness concerning the research standards set by CACREP and their attitudes toward quantitative research. The findings revealed that the students reported feeling moderately prepared in terms of meeting CACREP research standards and showed relatively low to moderate levels of confidence in their ability to engage with quantitative research.

The lack of interest in research and research competencies can be attributed to various factors, including a perception of research as irrelevant, challenges in comprehending and applying research findings to clinical settings, and limited access to research once they are no longer affiliated with a university (Wester & Border, 2014). Wester and Border (2014) argued that one critical reason might be insufficient research training, specifically in understanding research articles, conducting research, and effectively reporting results. Umstead (2019) also revealed that certain CITs in master's programs reported insufficient practical training in research, ineffective teaching methods, and little emphasis on the application of research in their clinical practice.

Students in a Hispanic-Serving Institution

HSIs represent a distinct category among federally designated minority-serving institutions (MSIs), characterized by having a student body comprising 25% or more individuals of Latine/Hispanic/Mexican descent. Since the introduction of HSIs (Higher Education Amendments, 1992), there has been a growing body of literature focusing on the potential impacts of HSIs on Hispanic students and institutions, the diversity of student bodies, and institutional infrastructure (Valdez, 2023). Pérez-

Rojas et al. (2023) utilized a national data set to analyze the results of psychotherapy for 9,515 Latine students who sought college or university counseling centers across HSIs and PWIs. They found those in HSIs showed a significant decrease in academic distress during the psychotherapy process, compared to their counterparts in PWIs.

Despite the increase in the number of HSIs, concrete steps to support the students in these institutions in both mental health and academic success are warranted (Liou et al., 2023). A self-defeating framework exists among emerging scholars who belong to this historically marginalized population (Davis & Museus, 2019). Liou and colleagues (2023) explored Latinas at an HSI, highlighting the dominant narratives that disturb their growth and justify structural and interpersonal barriers. These narratives depicted Latinas as a group that voluntarily diminished their self-expectations in navigating the education system. Monarrez et al. (2024) also revealed the critical role of undergraduate research programs, including research experience, mentorship, and workshops in applying for graduate school with a STEM major among Latine students. As such, fighting against this deficit ideology and increasing the interest in educational achievement among Latine students are critical (Liou et al., 2023).

Photovoice

Given the limited experience and high anxiety about research among master's-level students, more creative approaches to promoting research efficacy and interest among counseling students are required. Due to the professional standard for counselor education that requires a research course as one of the core curricula (CACREP, 2023), a research class for CITs may be the first space that students engage in learning research in the counseling profession. Furthermore, effective educational methods may increase students' research self-efficacies among these students. Meanwhile, adopting decolonizing and nontraditional educational methods is critical for students who have historically marginalized identities (Borders et al., 2019; Singh et al., 2020).

With increasing attention to adopting photography as a tool to promote knowledge and understanding, a photovoice methodology has received attention as an instructional approach that utilizes photography (Zeglin et al., 2019). Photovoice is one of the participatory action research (PAR) methodologies, which enables people to visually represent their experiences through photographs to promote discussion, enhancing awareness and knowledge of community issues, and ultimately driving positive social change (Wang & Burris, 1997). This method was developed to raise the marginalized voices related to women's health (Wang, 1999). Previous researchers have demonstrated the versatile use of photovoice, which has been utilized not only as a research method but also as a clinical and educational intervention in communities (Zeglin et al., 2019). Given the high anxiety toward the research course, using a photovoice method may help students engage in the research arena with decreased anxiety.

To the best of my knowledge, however, the photovoice methodology has never been used for teaching research courses for CITs in master's-level programs. I found one study that used photovoice for teaching research to doctoral students who were in CACREP-accredited programs and master's-level students in psychology programs (Patka et al., 2017). The authors discussed a detailed process of conducting photovoice and challenges in the classroom. Nevertheless, a detailed understanding of the efficacy of a photovoice project, particularly comparing outcomes before and after its implementation, has not been investigated.

Current Study

The purpose of the current study was to examine the efficacy of a photovoice project among CITs who enrolled in a research class at an HSI. The following research question guided the present study:

Is there a significant difference between CITs' interest, attitudes, and self-efficacy in research, before and after joining a photovoice project?

The three domains — interest, attitudes, and self-efficacy — were chosen based on previous studies with doctoral students (Borders et al., 2020; Lamar & Helm, 2017; Lambie & Vaccaro, 2011; Limberg et al., 2020; Wang et al., 2022), as well as Bandura's self-efficacy concept (Bandura, 1982), which centers learning. In addition, anxiety toward research was included as a significant variable in the current project, because anxiety toward research predicts students' intentions to pursue scientific research careers (Cooper et al., 2023).

Method

Participants

This study was conducted in an HSI where more than 84% of students are Latine populations. The demographic information of the potential participants ($n = 40$) was as follows: 70% of students were female ($n = 28$), while 30% of students were male ($n = 12$). The range of years participants entered the program spanned 4 years, from spring 2019 to spring 2023. The majority of students were enrolled in the mental health counseling program ($n = 33$, 82.5%), with four school counseling students (10%), and three rehabilitation counseling students (7.5%). Of the total of 40 potential participants, 37 students agreed to participate in the research on their experiences with the photovoice project.

Procedures

After obtaining institutional review board approval from the university, data collection was conducted using the Question Pro survey platform (Question Pro, 2023). The inclusion criteria for research participation were as follows: (a) participants had to be 18 years old or above, (b) enrolled in a master's program of counseling, and (c) taking part in a research course that incorporated a photovoice project. Students with noncounseling majors were excluded from data collection and analysis. Among 40 potential participants within the two classes of

the same course, 37 students (92.5%) participated in the research study.

Due to the unique circumstances of the study, with the author serving as a primary instructor of the course where the potential research participants were students, special considerations were taken to minimize coercion and ensure anonymity. Identifiable demographic information was not collected, and a nickname was used to match the pre- and post-surveys. Research participation was voluntary, and the participants were informed of their rights. The CITs completed three questionnaires twice, once before and once following the completion of the photovoice project, which included taking pictures, showing the pictures to classmates, and discussing the experience. There was no incentive for research participation.

Photovoice Project

Before commencing the photovoice project, the author provided a brief orientation on photovoice, covering its history, purpose, procedures, ethics, and precautions. Specific details about the procedure were also outlined in the course syllabus.

The photovoice project comprised three parts: (a) taking a picture of a topic within communities, (b) presenting pictures to classmates and explaining them using SHOWeD questions, and (c) participating in critical discussion and reflections, and sharing knowledge about their photos. The overarching prompt for taking a photo was: "What are your passionate areas to investigate as a researcher?" The specific SHOWeD questions, as proposed by Wang (1999), were as follows: (a) What do you See here? (b) What is really Happening here? (c) How does this relate to Our lives? (d) Why does this situation, concern, or strength exist? (e) What can we Do about it? The implementation time of the first part, taking a photo, spanned 2 weeks, while the second part, explaining the photo and participating in the discussion, took approximately 4 hours.

Measures

Interest in Research Questionnaire

The Interest in Research Questionnaire (IRQ; Bishop & Bieschke, 1994) was used to measure interest in research and comprised 16 items, each describing a different research activity. Participants utilized a 5-point Likert scale ranging from 1 (very disinterested) to 5 (very interested), to indicate their level of interest in research activities (e.g., discussing research ideas with my colleagues). The survey instructions informed participants that the term “research” included both qualitative and quantitative approaches. Internal consistency estimates were evidenced by coefficient alphas of .89 (Bishop & Bieschke, 1994) and .90 (Bieschke et al., 1996). The internal consistency was .94 (pre-photovoice) and .97 (post-photovoice) in the current sample.

Revised-Attitudes Toward Research Scale

The Revised-Attitudes Toward Research Scale (R-ATR; Papanastasiou, 2014) was used to measure the change in students’ attitudes toward research. The R-ATR was developed from the longer 32-item Attitudes Toward Research (ATR) measure, and the revised instrument consists of 13 self-report items presented on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The R-ATR assessed research attitudes in three domains: (a) anxiety ($n = 5$), (b) usefulness of research ($n = 4$), and (c) positive research predisposition ($n = 4$). Although one study (Akour et al., 2024) of confirmatory factor analysis of the scale dropped one item because of a high correlation between two items in a subdomain of “research anxiety,” the current study decided to use the five items given the nature of the t-test analysis — not an item level analysis. The internal consistency of each domain in the current sample was as follows: .85 (pre-anxiety), .80 (post-anxiety), .68 (pre-usefulness of research), .77 (post-usefulness of research), .90 (pre-positive research predisposition), and .93 (post-positive research predisposition) in the current sample.

Research Self-Efficacy Scale

The Research Self-Efficacy Scale (RSES; Bieschke et al., 1996) was used to measure research self-efficacy and described 51 research tasks. Participants rated their confidence in their ability to perform each task on a 100-point scale from 0 (no confidence) to 100 (complete confidence). Bieschke et al. (1996) performed a principal components analysis that summarized the following four components: early tasks ($n = 5$), conceptualization ($n = 16$), implementation ($n = 20$), and presenting results ($n = 8$). The remaining 2 items measured global research self-efficacy. Internal consistency of coefficient alpha based on each concept was as follows: .95 (pre-conceptualization), .96 (post-conceptualization), .96 (pre-implementation), .94 (post-implementation), .88 (pre-early tasks), .84 (post-early tasks), .93 (pre-presenting results), and .93 (post-presenting results).



Results

Preliminary Analysis

A minimum sample size of 36 participants was calculated based on the results of a statistical power analysis using G*Power with an effect size of 0.5, a significant level (α) of 0.05, and a desired statistical power of 0.90. A total of 37 participants from the two classes joined the research project. To combine the data, any differences between the two classes were checked by Levene’s test for equality of variance and independent samples t-tests, but there were no statistically significant differences ($p \geq .05$). I found that there was one data point with significant missing values based on the missing data analysis calculation. Thus, I decided to remove one data point for the next steps of the main analysis with a total of 36 responses. Little’s (1988) MCAR test suggested that values were missing entirely at chance ($\chi^2 (1083) = 245.00, p \geq .05$). Thus, these missing values were replaced through mean imputation in SPSS.

Paired Sample T-tests

A paired sample t-test (i.e., dependent sample t-test) is a statistical method to examine the difference between two related (repeated or matched) variables, and previous scholars in the counseling profession encouraged the use of this method for intervention studies (Watson et al., 2021). To conduct the paired sample t-test, one of the most important assumptions was the normal distribution of data without outliers. Visual verification of the histogram as well as the values for kurtosis and skewness were used. Values within the range of -2 to +2 of skewness and -7 to +7 of kurtosis have been classified as normal. Based on the examination of normal distribution, all related variables were normally distributed and there was no outlier. The descriptive statistics are presented in Table 1.

Based on the series of following paired sample t-tests, there were significant increases in four research self-efficacy subdomains after joining the photovoice project while there were no significant changes in research interest and three research attitude subdomains. The paired sample t-test results are presented in Table 2.

Interest in Research

The t-test result indicated that there was no significant difference in research interest before and after the photovoice project, $t(35) = 0.40, p \geq .05$.

Attitudes Toward Research

The t-test result indicated a significant difference in anxiety toward research before and after the photovoice project, $t(35) = -2.53, p < .05$. Specifically, the result indicated that anxiety toward research significantly decreased after joining the photovoice project ($M = 4.15, SD = 0.95$) compared to prior to joining the photovoice project ($M = 4.54, SD = 1.10$). The effect size of Cohen's d was 0.42, which was interpreted as small (Cohen, 1988).

The t-test result indicated that there was no significant difference in attitude about the usefulness of research before and after the photovoice project, $t(35) = 1.31, p \geq .05$. In

addition, there was no significant difference in positive research predisposition before and after the photovoice project, $t(35) = -2.00, p \geq .05$.

Research Self-Efficacy

The t-test result indicated that there was no significant difference in self-efficacy in early research tasks before and after the photovoice project, $t(35) = 1.93, p \geq .05$.

On the other hand, the rest of the results regarding the research self-efficacy indicated that there was a significant difference in self-efficacy in research conceptualization before and after the photovoice project, $t(35) = 3.53, p < .05$. Specifically, the t-test result also indicated that self-efficacy in research conceptualization was significantly higher after joining the photovoice project ($M = 70.20, SD = 16.69$) compared to prior to joining the photovoice project ($M = 57.54, SD = 20.31$). The effect size of Cohen's d was 0.59, which was interpreted as medium (Cohen, 1988).

The t-test result also indicated that there was a significant difference in self-efficacy in research implementation before and after the photovoice project, $t(35) = 2.81, p < .05$. Specifically, the result indicated that self-efficacy in research implementation was significantly higher after joining the photovoice project ($M = 63.82, SD = 15.40$) compared to prior to joining the photovoice project ($M = 53.31, SD = 21.38$). The effect size of Cohen's d was 0.47, which was interpreted as small (Cohen, 1988).

Lastly, the t-test result indicated that there was a significant difference in self-efficacy in presenting the results before and after the photovoice project, $t(35) = 3.33, p < .05$. Specifically, the result indicated that self-efficacy in presenting the results was significantly higher after joining the photovoice project ($M = 63.81, SD = 21.19$) compared to prior to joining the photovoice project ($M = 51.33, SD = 24.52$). The effect size of Cohen's d was 0.56, which was interpreted as medium (Cohen, 1988). The visual representation comparing self-efficacy scores before and after photovoice projects is presented in Figure 1.

Table 1*Descriptive Statistics*

Variables	N	Minimum		Maximum		Mean		Std. Deviation		Skewness		Kurtosis	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
IRQ	36	27.00	16.00	79.00	80.00	49.86	50.97	13.45	18.62	0.25	-0.38	-0.75	-0.72
ATSR_A	36	1.60	2.00	7.00	6.40	4.54	4.15	1.10	0.95	-0.76	-0.07	1.59	0.68
ATSR_P	36	1.75	1.75	7.00	7.00	4.42	4.64	1.22	1.35	-0.08	-0.47	0.65	0.08
ATSR_U	36	4.75	3.75	7.00	7.00	6.12	5.81	0.70	0.93	-0.15	-0.39	-1.19	-0.78
RSES_E	36	16.20	26.20	96.60	99.00	64.46	71.20	21.12	18.43	-0.56	-0.56	-0.30	-0.46
RSES_C	36	11.88	20.88	98.31	98.69	57.54	70.20	20.31	16.69	-0.12	-0.78	0.00	0.77
RSES_I	36	4.65	22.10	95.05	94.55	53.31	63.82	21.38	15.40	-0.50	-0.42	0.32	0.46
RSES_P	36	0.13	4.50	98.63	97.00	51.33	63.81	24.52	21.19	0.04	-0.55	-0.23	0.33

Note. IRQ: Interest in Research Questionnaire, ATSR: Revised-Attitudes Toward Research (A: Anxiety, P: Positive Research Predisposition, U: Usefulness of Research), RSES: Research Self-Efficacy Scale (E: Early Task, C: Conceptualization, I: Implementation, P: Presenting Result).

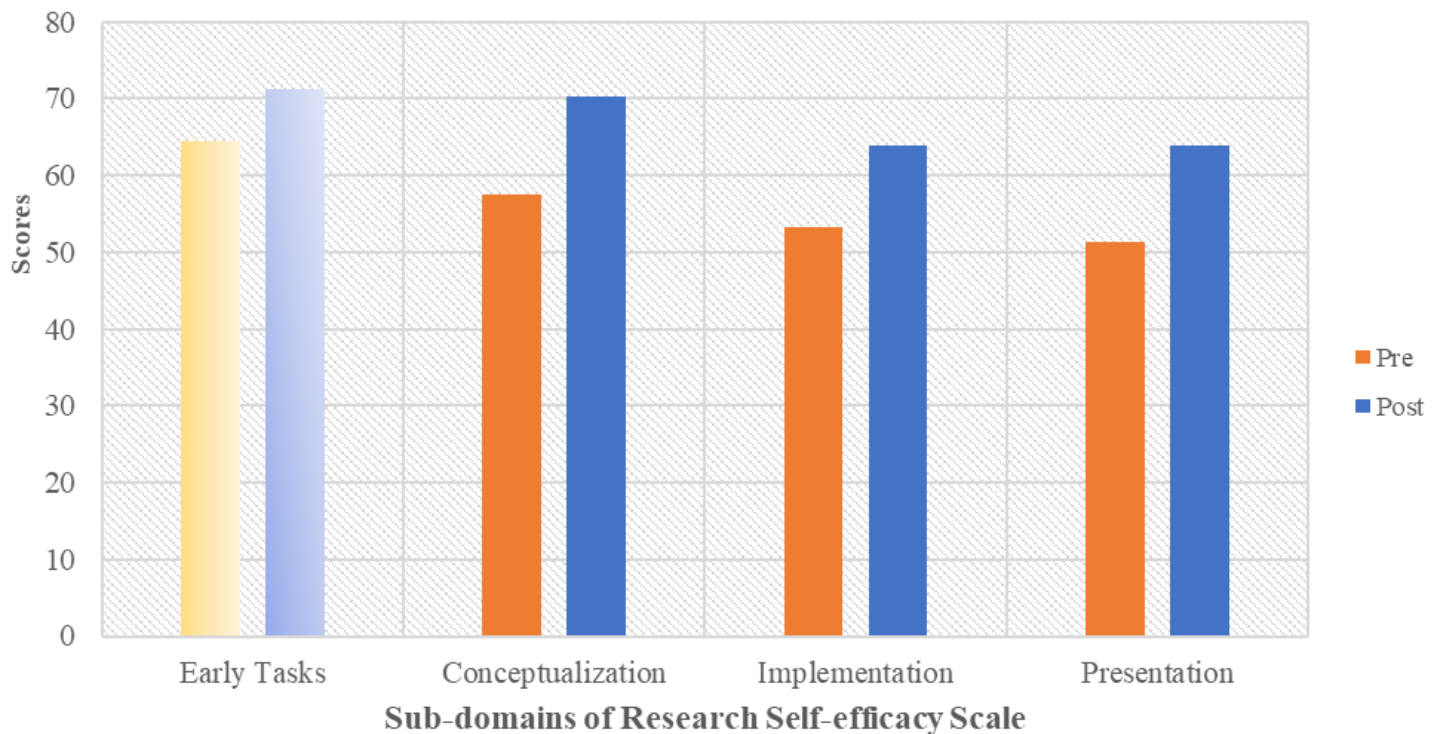
Table 2*Paired Samples Test Results*

		Mean	SD	Std. Error Mean	95% CI of the Difference		t	df	Cohen's d
					Lower	Upper			
Pair 1	Post-IRQ – Pre-IRQ	1.11	16.85	2.81	-4.59	6.81	0.40	35.00	0.07
Pair 2	post-ATSR_A – Pre-ATSR_A	-0.39	0.91	0.15	-0.69	-0.08	-2.53*	35.00	-0.43
Pair 3	post-ATSR_P – Pre-ATSR_P	0.22	0.98	0.16	-0.12	0.55	1.31	35.00	0.22
Pair 4	post-ATSR_U – Pre-ATSR_U	-0.31	0.94	0.16	-0.63	0.00	-2.00	35.00	-0.33
Pair 5	post-RSES_E – Pre-RSES_E	6.74	20.91	3.48	-0.34	13.81	1.93	35.00	0.32
Pair 6	post-RSES_C – Pre-RSES_C	12.66	21.51	3.58	5.38	19.93	3.53*	35.00	0.59
Pair 7	post-RSES_I – Pre-RSES_I	10.51	22.42	3.74	2.92	18.09	2.81*	35.00	0.47
Pair 8	post-RSES_P – Pre-RSES_P	12.49	22.47	3.74	4.89	20.09	3.33*	35.00	0.56

Note. * $p < .05$, SD = standard deviation, CI = Confidence Interval.

Figure 1

Research Self-Efficacy Score Comparison Between the Pre- and Post- Photovoice Project



Discussion

The current study hypothesized that participation in the photovoice project would result in changes in the CIT's research interest, attitudes toward research, and self-efficacy in research. The results indicated that the photovoice project did change one of the attitudes toward research (i.e., anxiety reduction) and three areas of self-efficacy in research (increased research conceptualization, implementation, and presentation), while there was no change in research interest, two domains of attitudes (predisposition and usefulness) as well as one domain of self-efficacy (early tasks).

Among various changes — anxiety reduction, enhanced self-efficacy in conceptualization, implementation, and presentation — after joining the photovoice project, anxiety reduction was especially meaningful given that anxiety toward research has been investigated as a negative factor in research self-efficacy and learning (Cooper et al.,

2023; Papanastasiou & Zembylas, 2008).

Papanastasiou and Zembylas (2008) stated that, based on their more than 10 years of teaching experience, the prevailing anxiety among students learning research methods was something they consistently encountered. They also pointed out the importance of reducing anxiety by using effective teaching styles. Considering the previous findings showing the misconception of research as “only for scientists who know a lot about numbers and statistics” (Jorgensen & Duncan, 2015, p. 337), providing an opportunity to experience and learn an innovative way would be important to decrease research anxiety and to open the door to the research world.

Research efficacy in three areas — conceptualization, implementation, and presentation — significantly increased after experiencing photovoice projects in the current study. As the photovoice project focused on their passionate research topic, the process, including narrowing students' topics down to capture a

picture and presenting those pictures with narratives, seems to have been meaningful in raising students' self-efficacy. Indeed, a previous study found that students with publications demonstrated a higher level of self-efficacy in research compared to students without any publications (Lambie & Vaccaro, 2011). Although the photovoice project was not the same as the publication process, implementing a small project with the framework of research may help students' self-concept of their efficacy.

No change within the subdomains of research self-efficacy was meaningful to reflect on. Specifically, the mean score of interest in research of the current participants was 3.11, which was lower than previous results of 4.07 (Bard et al., 2000) and 3.57 (Lambie & Vaccaro, 2011). Given that these scores were taken from doctoral students' interest in research, the lower mean score of the interest in research among master's-level students was not surprising. In addition, the current results were aligned, confirming that research interest was a stable characteristic among people as observed in the previous study (Lambie & Vaccaro, 2011). This previous study demonstrated no statistically significant relationships with participants' age, counseling specialty, or scholarly publications. Similarly, research predisposition — one domain from attitudes toward research — measured the interest in research with an item such as "I am interested in research," and the current result revealed the consistency in the result.

With no change of perception in research usefulness, I found the photovoice project alone was not effective in changing the perception of the importance of research for the counseling profession. Specifically, items measuring research usefulness were asking about the usefulness of research for their future career, field, and training. Master's-level students may have found less usefulness in research when they were asked about a "career" related to research, which may remind them of a doctoral program, rather than *counseling*. Thus, additional emphasis on the role of research in the field would be necessary when a photovoice project is used. No change in self-efficacy in early

tasks was noteworthy as well. The items in the "early tasks" included but were not limited to seeking funding opportunities. Training for literature review and seeking funding may need to be considered with other methods.

In summary, the photovoice project will be a useful tool for CITs to learn research, particularly to reduce their anxiety, practice recruiting participants, and present the results. Moreover, photovoice projects can be enhanced by incorporating additional tools to emphasize the importance of research in the field and to educate students on conducting literature reviews and identifying grants.

Implications for Counselor Educators

The current study discovered various considerations for teaching research to CITs by using an innovative method. First, the specific needs of students based on their program level are critical to consider in teaching research. As observed from the previous studies and the current findings, which showed no significant changes and a very small effect size (Cohen's $d = 0.07$) for research interest, it appeared that predispositions, particularly research interest, are relatively stable and not easily changing. In other words, counselor educators need to know the CIT's level of interest in learning research and consider specific areas that a student would have some interest in. For instance, master's-level students may not be interested in producing a research project, but they may acknowledge the need to know how to search for research articles as well as critically read methods and findings, to utilize effective treatment models. Thus, targeting students' interests and needs, such as understanding research articles, might be important in designing a research class curriculum.

Second, I found that using the photovoice project might be insufficient to educate about the critical role of research in the counseling field. Based on the current results of not significant and small effect size of Cohen's d on change in the usefulness of research ($d = -0.33$), counselor educators need to tailor the specific usefulness of research for master's-level students. Thus, pairing with another

method to understand the vital role of research in the field is warranted to educate CITs. Counselor educators need to educate students that research is one of the most effective tools to persuade people in the era of accountability (Minton & Lenz, 2019). Given that CITs may need to find funding opportunities after graduation, discussion about seeking funding and establishing the logic for grant writing can be another way to emphasize the importance of critical thinking and academic writing.

Lastly, the photovoice method is innovative in terms of using photos instead of words or numbers. The current study demonstrated that photovoice has strength in decreasing anxiety (small effect size; $d = -0.43$) and increasing specific areas of self-efficacy (small to medium effect size; $d = 0.47$ to 0.59). For an introductory-level research class, utilizing a photovoice project would work well to invite students to reduce the psychological barrier to research and learn by doing small projects. Thus, the current findings suggest a further need to adopt innovative teaching methods to help CITs engage in research.

Limitations

The present study adds to the counselor education literature on using photovoice projects in teaching research to master's-level students, with several limitations to consider. First, although the potential participants were recruited from an HSI where 84% of students are Hispanic, this study included other students with different racial identities. Since the photovoice project was based on active interaction among students, I decided not to exclude traditionally privileged students based on race/ethnicity so that the result might capture the collaborative impact of photovoice on the class as a learning group. Thus, the results must be interpreted as the outcome of students in one HSI, not Latine students. Second, the participants were a homogenous group in terms of taking the class taught by the author. This study is a starting point to investigate the effect of photovoice among CITs, but various teaching styles may need to be considered in future studies. Third, the limitation of

self-reporting is critical to interpret the results. Since the scales in the current study were all self-report scales, there might be some influence from social desirability in capturing accurate efficacy and competency. Last, a control group was not included in the study, which limits the ability to compare the effects of the project with baseline conditions.

Future Research

Based on this study, there are two main suggestions for future research. First, a mixed-method study is recommended to understand the effects of a photovoice project in research courses for master's-level students. The current study was based on the gap to examine the quantitative evidence of the effects of the photovoice project. Given the findings include both nonsignificant and significant differences, a deeper understanding of both quantitative and qualitative data would be beneficial for the counseling profession. Second, as of the current knowledge, there was one scale to measure CITs' identity related to research. Jorgensen and Schweinle (2018) developed the research identity scale with one factor with 21 items. This tool was developed based on empirical data the author conducted interviews with, however, it is focused on becoming a "researcher," including items such as "I am willing to take risks around research." The counseling profession needs unique attention toward master's-level students' needs in research education. While educating students as potential competent researchers is important, there is a unique educational goal to prepare students to become critical thinkers and research consumers. Thus, rather than solely focusing on the development of a "researcher" identity, developmentally appropriate research competencies are critical to be defined and measured. Future studies may need to focus on scale development and validation to assess this specific competency.



Conclusion

Findings from this current study provided a multifaceted picture and aimed to examine how

effective the photovoice project is in instructing research skills to CITs at an HSI. Thirty-six responses were used to analyze the difference in the research-related scores between the pre- and post-surveys of the photovoice project. The findings indicate a reduction in research anxiety and an improvement in self-efficacy regarding research conceptualization, implementation, and presentation. However, there was no discernible change in research interest, predisposition, usefulness, or self-efficacy in early research tasks. The study discusses the importance of adopting innovative methods in teaching research, and consideration of the developmental stage of CITs and specific educational goals.

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