A web-based career counseling intervention for enhancing career decision-making among prospective polytechnic students

By

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Abstract

The training programs that polytechnic students undertake focus on practical and real-world application skills for their future careers. In the process, students need career counseling that strengthens their career decision-making. Web-based career counseling has a great deal of potential for increasing students' career decision-making capabilities in a significant way. This study's purpose is to investigate the efficacy of web-based career counseling in enhancing prospective polytechnic students' career decision-making. The research used an experimental research design. A simple randomization strategy was used to assign the 37 polytechnic students from a Nigerian polytechnic to either the web-based career counseling group (n=18) or to the control group (n=19). The data was gathered using a career decision-making scale. The duration of the web-based career counseling intervention was 6 weeks; each online session took place two times per week and a two-week follow-up was done after three months. The duration for each web-based career counseling session was 75 minutes. It was found that web-based career counseling intervention significantly enhances students' career decision-making, and as a result, career practitioners and counselors can benefit from similar research endeavor as they continue to support students in their career development journey.

Keywords: career counseling, career decision, polytechnic students, telegram, web-based counseling

Introduction

The ultimate objective of counseling is to assist individuals in achieving their goals for mental health, wellbeing, education, and employment by fostering a professional relationship with a counselor (American Counseling Association, 2014; Kaplan et al., 2014). Assisting people in finding their actual selves, developing self-awareness, and creating a distinct and cohesive vision of themselves and the workplace are all aspects of career counseling that have a substantial impact on professional decision-making (Zunker, 2011; Gati et al., 2019; Ulas and Yildirim, 2019). Making career decisions is one of the most essential areas of students' lives that have long-term consequences (Hou et al., 2019; Wang et al., 2018). It is not uncommon for students to face challenges such as decision-making challenges, career planning challenges, and career dissatisfaction when they begin their career journey. And when facing these concerns, most students are left unprepared for how to handle them due to lack of career guidance from experts (Gati and Levin, 2015). While career counselors and academic advisors

have been concerned about students' career decision-making for decades, identifying alternatives, acquiring information, weighing the possibilities, picking one option, and implementing the chosen alternative are all parts of the career decision-making process that students can be exposed to. Students who are suffering and experiencing difficulties with career uncertainty may benefit from career counseling services. Professional counselors are in charge of explaining, recognizing, and executing career options as well as helping these people adjust to such decisions (Papakota, 2016).

Students can seek career guidance from counselors through distance counseling avenues which includes web-based career counseling, telephone counseling, email counseling, online chats, and videoconferences (Bright, 2015). As a result, one of the modes of career counseling with which clients' access to counseling expands and new kinds of support are made available is via web-based career counseling (Hooley et al., 2016). It is very pertinent to note that there is a growing trend toward Internet career counseling, where web applications such as WhatsApp and Telegram are being used for web-based career counseling. The convenience of using these web-based options allows people to access career counseling right from their homes without having to travel anywhere in order to meet a counselor for an in-person consultation (Brito, 2020). To deliver the intervention in this study, Telegram was used as a web-based career counseling tool. There are a number of abilities this application has, including instant messaging, sending large files, broadcasting channels, and group messaging, as well as having a faster connection speed, a bigger user capacity, and being compatible with a wide range of internet-enabled devices (Chaple-Gil and Afrashtehfar, 2020).

Web-based communication tools can be applied to a variety of online counseling contexts including career counseling and family health counseling. For instance, some studies conducted on the effectiveness of web-based counseling interventions focused on career development (Hooley 2012; Pordelan et al. 2018), individuals' career skills (Rutten et al. 2016), clients' career adaptability (Chen et al. 2018), and family health (Denzinger et al. 2019). The current study focused on career decision-making among prospective polytechnic students. In the context of this research, prospective polytechnic students are those who wish to enroll in a national diploma program in order to earn a national diploma certificate. Polytechnics embrace the learning by doing approach to education. They are career-focused, with an emphasis on giving students the opportunity to put what they have learned into practice, ensuring that new graduates are job-ready. Polytechnic programs seeks to provide a transformed learning experience in order to generate industry-ready graduates for today's economy, as well as perform research to develop technology and solve real-world problems (Purdue Polytechnic Institute, 2022). Despite the fast rise of web-based counseling, there is limited evidence that it is useful in improving prospective polytechnic students' career decision-making. This study's aim is to close this gap by evaluating the efficacy of a web-based career counseling intervention on prospective polytechnic students' career decision-making in Nigeria. The researchers hypothesized that web-based career counseling will enhance the students' career decision-making.

Method

The study used an experimental research design. In this study, participants were 37 students from a Nigerian polytechnic in Southeast zone of the country. Study participants were selected from different fields of study to participate in this study. This study used the Career Decision Scale (CDS) by Osipow et al. (1976) to collect data. There are 19 items in this scale and it has two scales: the decision-making scale (certainty scale) and the career indecisions making scale. While the first two questions assess decision-making/certainty, questions three to eighteen focus on career indecisions making. The last question is an open-ended item that gives students the opportunity to provide additional information. Students who score lower on

this scale demonstrate a greater ability to make career decisions. The test-retest reliability coefficients for the scale were determined as 0.90 and 0.82 in two samples, according to Osipow et al. (1976). The scoring procedure was based on four options of absolutely disagree (1), somehow disagree (2), somehow agree (3), and absolutely agree (4) (Parishany and Nilforooshan, 2015).

To conduct this study, the intervention was carried out through telegram web application. Two research assistants aided in the delivery of the web-based career counseling intervention. A simple randomization strategy was used to assign the 37 polytechnic students from a Nigerian polytechnic to either the web-based career counseling group (n=18) (8 males and 10 females) and the control group (n=19) (12 males and 7 females). The overall demographic revealed that 54.1% of the participants were male students while 45.9% were female students. Additionally, 37.8% were within the age bracket of 15-18; 40.5% were within the age bracket of 19-22 while 21.6% were within the age bracket of 23 and above. In this research, the web-based career counseling program was developed in accordance with the life design manual by Savickas (2015). The duration of the web-based career counseling intervention was 6 weeks; each online session took place two times per week. Twelve sessions of web-based career counseling were offered to the intervention group. The duration for each web-based career counseling session was 75 minutes. There was an introduction to the counseling process, a brief personal introduction by the participants and counselors, a discussion of expectations, privacy of information, group norms, and exploration of the global and personal perspective regarding career choices during the first two sessions. The third and fourth sessions gave students the chance to make lists of the work they had done and the jobs they were considering applying to, as well as information on the value of making career decisions and the difficulties associated with the transition from secondary school to higher education. In the fifth and sixth sessions, we focused on giving a recap of the prior sessions, talking about the homework they had completed, getting students to make lists of their professional worries, and motivating them to tell real-life job tales. We reviewed and presented a condensed version of the prior sessions' content in the seventh and eighth sessions, clarified any remaining questions, presented the career personality discovery table, and discussed life and career personalities. The ninth through tenth sessions mostly concentrated on evaluating assignments and addressing any uncertainties. They also introduced the career personality discovery table, went through life and career personalities, and encouraged the students to revise their narrative. The eleventh and twelfth sessions placed a lot of emphasis on encouraging students to stick with their choices, choose their career paths, and complete the post-test questionnaire to demonstrate that they had accepted responsibility for their actions. Two more sessions were scheduled in order to conduct a follow-up test, which took place about three months later.

As this research investigated the efficacy of web-based career counseling on career decision-making, participants were clearly informed of the study's ethical implications, and they were reassured of their personal information's confidentiality throughout the study. All participants signed online informed consent forms prior to participation. The subjects in the study groups were asked to complete a career decision making questionnaire as a pre-test before the training and subsequently completed another questionnaire after training as a post-test. General career information lessons were offered to the study participants in the control group. Afterwards, each of the participants received a small token as an appreciation for their participation in the study.

The data collected were entered using the statistical package for social sciences (SPSS) program, version 25. SPSS was also used to conduct preliminary analyses including Cronbach

Alpha reliability test, the Pearson product moment test of internal consistency, and frequency, percentage, and graph of homogeneity of regression slope. The dataset was transferred to JASP 0.16 1.0 program. JASP was used to calculate Levene's test of equality of variance, sphericity test, mean, standard deviation, repeated-measures ANOVA, omega squared (intervention effect size indicator) and Holm posthoc test.

Results

A preliminary analysis of the dataset was conducted to examine basic assumptions guiding the scale items and repeated ANOVA. Some of these assumptions were internal consistency, temporary stability, Levene's test of equality of variance, sphericity test, and homogeneity of regression slope. The Cronbach's Alpha reliability test of pretest, posttest, and follow-up of the dataset showed that the instrument is reliable since it recorded reliability coefficients of .81 at pretest, .96 at posttest, and .97 at follow-up respectively, which are above .60 acceptable reliability score. Test of temporary stability of the dataset was established using Pearson product moment correlation posttest and follow-up test. The pretest and posttest datasets were correlated and a temporary stability coefficient of .76 was recorded.

The Levene's test of equality of variance was conducted on the datasets. Using the CDS scale measurement, the pretest, posttest, and follow-up test of the datasets were significant $[F(1, 35) = 5.19, p=.029]$ for pretest; $[F(1, 35) = 20.27, p<.001]$ for posttest, and $[F(1, 35) = 24.46, p<.001]$ for follow-up. This revealed that the assumption of the homogeneity of equal variance across groups was violated .05 level of significance. This is expected due to intervention which affected participants' ratings. The dataset as measured by CDS was subjected to a sphericity test. The dataset had a sphericity score $[x^2(2)= 1.092, p=.579]$ denoting that the assumption of sphericity was not violated. Figure 1 which is the homogeneity slope of CDS dataset comprised of posttest and follow-up scores. The slope of the regression line pointed in the same direction, denoting no violation of the assumption of homogeneity of regression slopes.
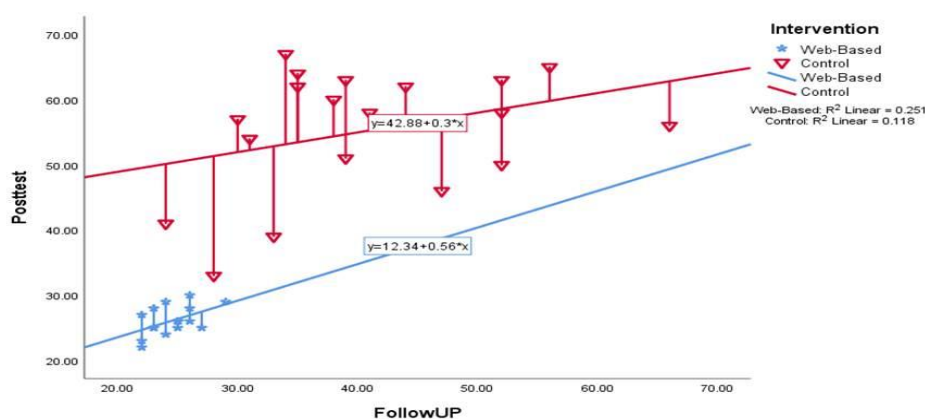
Figure 1: Homogeneity of Regression Slope as measured by CDS

Table 1: Mean ratings and standard deviations of participants exposed to web-based career counseling group and control group.

Times	Intervention	Mean	SD	N
Pre-test	Control	66.47	4.75	19
	Web-Based	67.89	2.72	18
Post-test	Control	55.21	9.59	19

Times	Intervention	Mean	SD	N
	Web-Based	26.11	2.11	18
Follow-up	Control	40.84	10.90	19
	Web-Based	24.56	1.89	18

The dataset as measured by CDS was subjected to descriptive statistics as shown in Table 1. The result shows that at pretest, the mean ratings of participants in control group (66.47±4.75) and web-based career counseling group (67.89±2.72) were similar. However, there was a difference in posttest mean ratings of participants in web-based career counseling and control groups with indication of a substantial decrease in the mean ratings of participants in the web-based career counseling intervention group. The follow-up scores show that there was also a difference between the participants in the control and web-based career counseling groups in CDS mean ratings.

Table 2: Repeated measures analysis of variance for pretest, post-test, and follow-up datasets

Cases	Sum of Squares	Df	Mean Square	F	P	ω²
Group	5957.05	1,35	5957.05	101.36	< .001	0.58
Time	24103.52	2,70	12051.76	350.43	< .001	0.84
Time ✷ Group	4340.21	2,70	2170.10	63.10	< .001	0.48

Table 2 shows the repeated measures analysis of variance that was conducted to test the significant difference between pretest, post-test, and follow-up datasets. The datasets showed that there was a significant difference in mean ratings of participants in web-based career counseling intervention and control groups [$F(1, 35)= 101.36$; $p<.001$, $\omega^2= 0.58$]. Furthermore, a significant difference was observed with respect to time [$F(1, 35) = 350.43$; $p<.001$, $\omega^2=0.84$]. And interaction between group and time was significant [$F(2, 34) = 63.10$; $p<.001$, $\omega^2= 0.48$].

Table 3: Post Hoc Comparisons for Group by Time interactions

		Mean Difference	SE	t	p_{holm}
(Web-Based, Time 1)	Control, Time 1	1.42	2.14	0.66	0.86
	(Web-Based, Time 2)	41.78	1.95	21.37	< .001
	Control, Time 2	12.68	2.14	5.91	< .001
	(Web-Based, Time 3)	43.33	1.95	22.17	< .001
	Control, Time 3	27.05	2.14	12.61	< .001
Control, Time 1	(Web-Based, Time 2)	40.36	2.14	18.82	< .001
	Control, Time 2	11.26	1.90	5.92	< .001
	(Web-Based, Time 3)	41.92	2.14	19.54	< .001
	Control, Time 3	25.63	1.90	13.47	< .001
(Web-Based, Time 2)	Control, Time 2	-29.10	2.14	-13.57	< .001
	(Web-Based, Time 3)	1.56	1.95	0.80	0.86
	Control, Time 3	-14.73	2.14	-6.87	< .001
Control, Time 2	(Web-Based, Time 3)	30.65	2.14	14.29	< .001
	Control, Time 3	14.37	1.90	7.55	< .001
(Web-Based, Time 3)	Control, Time 3	-16.29	2.14	-7.59	< .001

Holm posthoc test comparison was conducted due to the existence of significant differences in the mean ratings of the participants with respect to time and intervention. Based on the results, there was a significant difference in mean ratings of web-based career counseling

and control groups (Mean difference= -14.66, standard error=1.15; p<.001). Based on time, significant difference existed between pre-test and post-test (Mean difference=26.52, standard error = 1.36; p<.001), pre-test and follow-up (Mean difference = 34.48, standard error =1.36; p<.001) and post-test and follow-up (Mean difference=1.36, standard error =1.36; p<.001). The posthoc results for interaction of group by time is shown in Table 3 suggesting a number of significant comparisons (p<.001).

Discussion

The study discovered that using web-based career counseling can enhance prospective polytechnic students' career decisions. The finding is consistent with some earlier research. For instance, the finding supports those of Pordelan et al. (2018) who discovered a significant effect of online counseling on students' career development. The finding of the study is slightly consistent with those of Nota et al., (2016) who discovered that students had improved career adaptability after receiving online intervention as opposed to a control group. The finding is consistent with those of Pordelan and Hosseinian (2021), who discovered that after receiving online counseling, students scored higher on professional decision-making than the control group. The finding is in consonant with Chen et al., (2022) who found that an online intervention reduced students' career decision-making challenges. The finding of the study is slightly consistent with those of Hooley (2012), Rutten et al. (2016), Chen et al. (2018), and Pordelan et al. (2018) whose studies demonstrated the positive effect of web-based counseling interventions on participants' career variables. Despite the study's important addition to the career literature, there are some limitations to be noted. First, the study's participants were only Nigerian prospective polytechnic students, and as a result, the finding is limited to this group. Future studies should study more diverse samples, such as high school graduates and university students. Second, the intervention lasted for a few weeks, necessitating a follow-up; longitudinal study to determine the longer-term effects of the positive changes brought about by the intervention is necessary.

Since this research shows that web-based career counseling intervention enhances students' career decision-making, career practitioners and counselors can benefit from this research as they continue to support students in their career development journey. Students' career development needs should be addressed in the content of web-based career counseling sessions. While developing and enhancing one's digital literacy is important for both career counselors and clients, it is as important for career services, websites, and resources to be presented and developed in a way that takes full use of ICT. Additional partnerships with ICT experts to develop websites, apps, and interactive virtual worlds for career counseling may also encourage more career practitioners to take advantage of online career counseling services. In order to guarantee that the information displayed is constantly up-to-date and that users can comprehend it effectively, system usability and interface design are crucial. Therefore, the caliber of career information services and resources and how they are presented should go hand in hand when thinking about tactics to enhance career counseling services and draw in more career practitioners and users.

Conclusion

Given that web-based career counseling is increasingly attracting the interest of scholars, career practitioners and counselors, the use of web-based career counseling has become an important aspect of counseling services. As a result, the utility of web-based career counseling in enhancing students' career decision-making was evaluated in this study. The vocational decision-making of potential polytechnic students was enhanced by web-based career counseling, according to a comparison of the treatment and control groups. In order to continue assisting students in their professional development, career practitioners and counselors might profit from related research projects.

Ethics Statement

The research was conducted according to the guidelines set out by the American Psychological Association. The University of Nigeria's Faculty of Education Research Ethics Committee reviewed and approved the research. All participants completed an informed consent form.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

ZA and CE conceived the study. ZA, CE and YG were responsible for the research methodology and conduct of the study. All authors agree to be accountable for the content of the work.

Data Availability Statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

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