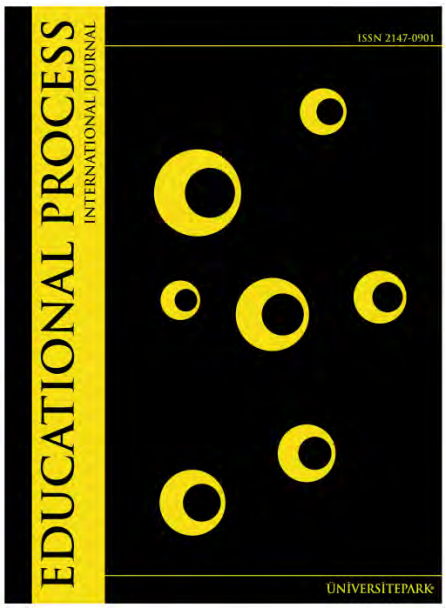

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Paul Kakupa and Han Xue

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Paul Kakupa, Northeast Normal University, China. (e-mail: paul.kakupa@unza.zm)

Han Xue, Northeast Normal University, China. (e-mail: hanx.100@nenu.edu.cn)

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Students' Attitudes towards Research: A Study of Graduate Education Students at a Chinese Normal University

PAUL KAKUPA and HAN XUE

Abstract

This study examined graduate education students' attitudes towards research, and explored the demographic factors associated with those attitudes. Using Papanastasiou's (2014) Revised Attitude towards Research (R-ATR) scale, the study collected data from 100 graduate students of an Education Faculty at a university in northern China. The results showed that the students had moderately positive attitudes towards research. A comparison between Doctoral and Master's degree students revealed that the former had significantly more positive research attitudes, higher self-efficacy, and lower research anxiety than the latter. An increase in the number of research courses taken was significantly associated with lesser research anxiety. Students' generalized self-efficacy was positively associated with their overall attitudes towards research. There was no significant relationship found between age and attitudes towards research. The study concludes by making suggestions about the need to enhance students' positive research attitudes as a means to eliminating research anxiety.

Keywords: research disposition, research anxiety, attitudes, research methods, research usefulness, attitudes toward research, generalized self-efficacy.

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Introduction

Graduate education is the level of education taken beyond that of the bachelor's degree. A key component of this educational level is research, which often culminates into either a Master's or Doctoral degree thesis or dissertation. Graduate education equips students with the necessary skills, knowledge and other competencies for independent research work. However, the ability to undertake research is not driven by the acquisition of research knowledge and skills alone; the affective component is equally key in this process. Despite having relevant research knowledge, individual feelings of anxiety and negativity about performing research can negatively impair the whole process of research. Feelings of fear, discomfort, and worry (anxiety), in particular, can breed negative attitudes towards research (Williams & Coles, 2003). These negative attitudes can, in turn, leave graduate students feeling dejected, and unable to fulfil the research requirements of their degree programs on time (Rezaei & Zamani-Miandashti, 2013). Several studies have found that anxiety or attitudes towards a particular course (such as research), can have serious implications on the learning process and academic performance of students (Elmore & Lewis, 1991; Ma, 1995; Onwuegbuzie & Wilson, 2003; Papanastasiou & Zembylas, 2008; Wise, 1985; Woelke, 1991; Zeidner, 1991).

Research has revealed that many university students transfer their negative attitudes and feelings about research to the research methods courses themselves (Papanastasiou, 2014). This may, therefore, influence the amount of time, effort and commitment they choose to invest in the course (Papanastasiou, 2005). Other studies have found that negative attitudes towards research are usually associated with negative attitudes towards statistics or mathematics courses (Nasser, 2004; Onwuegbuzie, 2003; Onwuegbuzie & Wilson, 2003; Pan & Tang, 2004). Roberts and Bilderback (1980), in particular, found that the majority of students in statistics classes were anxious. Despite a number of studies highlighting the key role of the affective component in student learning, no studies have been found that have particularly, investigated the research attitudes or anxiety of graduate students within the Chinese context. It is therefore considered necessary to investigate these attitudes so that mechanisms for encouraging or sustaining positive research attitudes among graduate students in China can be devised (Walters, Collie, & Webb, 1988).

Some studies conducted outside of the China context have tended to focus on undergraduate students (Korkmaz, Cole, & Buckley, 2010; Papanastasiou, 2014; Papanastasiou & Zembylas, 2008; Russell, Hancock, & McCullough, 2007) and on statistics-related anxiety (Murtonen, 2005; Nasser, 2004; Onwuegbuzie, 2003; Onwuegbuzie & Wilson, 2003; Pan & Tang, 2004). The challenge with these studies is that they cannot be generalized to all countries, as experiences of students vary across contexts. It is against this background that the current study was conducted in order to explore graduate students' attitudes towards research (in general) within the context of a Chinese university. The study adopted the revised version of the Attitudes Towards Research (ATR) scale by Papanastasiou (2014). The scale measures attitudes in three dimensions: Usefulness of Research, Anxiety about Research, and Positive Research Disposition. Information about how students fair on these subscales may provide critical feedback to instructors about the nature of instructional adjustments required to enhance the teaching and learning of research among graduate students.

Attitudes toward Research: Attitudes toward research constitute the positive and negative internalized beliefs or feelings about research. If negative, these feelings are often characterized by anxiety, fear of failing, lower levels of self-efficacy, lack of interest and low performance levels. As observed by researchers, many students harbor negative and anxious feelings about research (Green, Bretzin, Leininger, & Stauffer, 2001; Lazar, 1991; Maschi et al., 2007; Rabatin & Keltz, 2002; Rubin & Babbie, 2011; Secret, Rompf, & Ford, 2003; Wainstock, 1994). These negative attitudes are, to a great extent, influenced by students' beliefs about the role or relevance of research in their personal and professional lives (Bolin, Lee, GlenMaye, & Yoon, 2012).

Usefulness of Research: While research is increasingly being seen as vital to any professional practice, not all students see it as important to their own personal and professional development (Bolin et al., 2012). Depending on the nature of inherent beliefs about research they may be harboring, some students may or may not see the value of research courses (Pan & Tang, 2004; Rubin & Babbie, 2011). This ultimately, influences their overall research attitudes. Nevertheless, not all hope is lost for such students, as studies have shown that research instructors can play a crucial role in raising students' appreciation of the value of research (Morris, 1992). They can do this by altering their instruction in ways that emphasize real-life application of research (Green et al., 2001). When students clearly see how research applies to their professional practice or daily lives, they will become more aware about its usefulness, and hence, develop more positive attitudes towards it. Royce and Rompf (1992) caution that if research instructors only focus on teaching the usually abstract and highly philosophical concepts, then their students may not easily see the usefulness of research.

Research Anxiety: As pointed out earlier, many studies have reported that a number of students exhibit negative attitudes towards research, as they are often fearful, anxious and stressed about research (Korkmaz, et al., 2010; Papanastasiou, 2005, 2014; Papanastasiou & Zembylas, 2008; Russell et al., 2007) and about statistics (Murtonen, 2005; Nasser, 2004; Onwuegbuzie, 2003; Onwuegbuzie & Wilson, 2003; Pan & Tang, 2004). Montcalm (1999) argued that anxiety can potentially prevent students from effectively acquiring research knowledge and skills. It may also prevent them from taking an interest in evaluating and applying research evidence in their own practice. A study by Monahan (1994) found that educational professionals who had previously taken research courses, and had experienced a level of anxiety, completely lost interest in pursuing research projects of their own. Neither were they also interested in taking further courses on research.

Research Interest: Alongside research usefulness and anxiety, research interest is the third indicator of attitude towards research that the current study is focused on. Studies have revealed that lack of interest in research is common among students, especially when they cannot see how it applies directly to their practice and daily lives (Moore & Avant, 2008; Wells, 2006; Wells, Maschi, & Yoder-Slater, 2009). Research instructors can, however, bolster students' research interest and confidence by stressing the necessity of research in all spheres of human endeavor. Pan and Tang (2004) note that students' research interest can significantly increase if they are encouraged and provided with a supportive and conducive environment.

Self-efficacy and attitudes towards research: While attitudes may be affected by several factors, one such key variable is self-efficacy. Research has shown that students' fear of

failure or self-perceptions about their lack of ability to perform research tasks is related to self-efficacy (Petrovich, 2004). When one's self-efficacy is low, one's sense of confidence about accomplishing a particular task can also be low. Therefore, low self-efficacy is associated with high anxiety. However, students' research self-efficacy can improve if they are constantly provided with opportunities to apply their research knowledge in real-world practice. Unrau and Grinnell (2005), who conducted a study among Social Work students, observed that those students who had low research self-efficacy at the beginning of the semester made significant improvement by the end of the semester.

The purpose of the current study was to investigate graduate students' attitudes towards research, and to explore the factors associated with such attitudes.

Methodology

This was a cross-sectional study conducted at a normal university in Northern China. A total of 100 participants, who were all graduate students at the Faculty of Education during the 2018 spring semester, were conveniently sampled. The Faculty provides the following specializations at the graduate level: Principles of Education; Pre-School Education; Higher Education; Curriculum and Pedagogy; Comparative Education; Rural Education; and, Educational Management. Despite the variance in their specialization, students from these majors attend the same methodology classes. All of the participants in the study were either enrolled in, or had completed the compulsory Introductory Research Methods course offered by the Faculty. The aims of the study were explained to the prospective participants, and informed consent sought prior to distributing the questionnaire. Students were then asked to participate in the study at the end of their initial lesson. Other participants were recruited during one of the Faculty of Education's weekly research seminars. The average time taken to complete the survey was 10 minutes.

The participants' ages ranged from 21 to 44 years, with a mean of 28.22 years and a standard deviation of 5.395. The variable "Age" was, however, later categorized into four groups: 21-25, 26-30, 31-35, and 36+ (see Table 1). Females constituted the majority of the respondents (52%). Additionally, 79% of the respondents were Master's degree students. Over 60% had taken at least two research courses. Since the university admitted both domestic and international students, both types of students were sampled, 54% of which were international. Out of the 120 questionnaires distributed, 100 were returned, representing a response rate of 83.3%.

Table 1. Demographic information of participants

Variable		*n*	*%*
Age	21-25	45	45
	26-30	26	26
	31-35	19	19
	36+	10	10
Gender	Male	48	48
	Female	52	52
Program of Study	Master's	79	79
	Doctoral	21	21
Number of research courses taken	1	35	35
	2	65	65
Nationality Status	Chinese	46	46

	Other	54	54

In order to measure the dependent variable (Attitude Towards Research), the study adopted Papanastasiou's (2014) revised Attitude Towards Research (ATR) scale. The scale measures research attitude in three domains: Usefulness of Research; Anxiety about Research; and, Positive Research Disposition. The scale has 13 items in total, all measured on a seven-point, Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The three subscales have been reported to have the following reliability coefficients: Usefulness of Research (α = .90); Anxiety about Research (α = .86); and, Positive Research Predisposition (α = .92) (Papanastasiou, 2014).

For the purpose of capturing the independent variables relevant to this study, the ATR scale was modified to include a demographic section, with questions about age, gender, program of study, number of research courses taken, and nationality status (whether Chinese or other). Since the researchers were also interested in testing the relationship between research attitude and self-efficacy, Montcalm's (1999) Generalized Self-Efficacy (GSE) scale was attached to the ATR scale. The GSE scale has 10 items, with a four-point, Likert-type response format ranging from "not at all true" to "exactly true." Its internal consistency, as reported by its designer, is .844.

Descriptive statistics (range, mean, and standard deviation) were used to describe students' overall scores on the ATR scale. Mean scores and standard deviations were also conducted on each of the three dimensions of the ATR scale. Analysis of variance (ANOVA) was conducted in order to compare the students' attitude scores across all the independent variables of interest. While it was possible to run independent sample *t*-tests when comparing demographic variables with only two levels (e.g., gender), the fact that several such analyses were needed on the same dataset would have led to multiple *t*-tests being conducted –a situation that is widely known to increase the risk of committing type one error (Bryman, 2008; Creswell, 2013; Johnson & Christensen, 2017). For this reason, ANOVA was deemed suitable. Finally, the Pearson Product Moment correlation test was conducted to test the relationship between the students' ATR and generalized self-efficacy.

All of the five negatively-worded items of the "Research Anxiety" subscale of the ATR scale were reverse-coded before running the analysis. The internal reliability of the survey, as calculated by the Cronbach's alpha coefficient, revealed a considerably high internal consistency across all of the subscales: Usefulness of Research (α = .711); Anxiety about Research (α = .815); and, Positive Research Disposition (α = .819). The self-efficacy scale yielded a Cronbach alpha of .819.

Average scores (ranging from 1 to 7) were obtained for each ATR subscale by calculating the mean of all items for each of the dimensions. The overall attitude scores were then calculated by adding all of the subscale scores together. The resulting overall attitude scores ranged from 3 to 21. Higher overall mean scores signified more positive attitudes towards research.

Results

The results of the study reveal a marked variation in the graduate students' attitudes towards research. The students' overall attitude scores ranged from 8.15 to 21.0 (M = 15.6, SD = 2.38) out of a possible range of 3 to 21. Table 2 provides a descriptive summary of the median, range, mean, and standard deviation of the ATR values. A closer look at the attitude

scores across the three subscales reveals that students' tended to be more positive with regards to perceptions about the usefulness of research, but less positive about the ease of research courses. For instance, 93% of the respondents agreed that research was useful to their profession. The scores ranged from 3.25 to 7, with the majority of scores centered on the higher-end of the distribution (M = 6.25, SD = .78).

With regard to the ease of research, students displayed a moderate level of research anxiety. For example, over 40% agreed with statements such as, "research makes me anxious," while 35% disagreed. Additionally, as many as 48% agreed with the statement, "research courses are difficult," while only 34% disagreed. The research anxiety subscale was the least in terms of mean scores. The total scores on this subscale ranged from 1 to 7, with a mean of 4.19 and standard deviation of 1.42. The lower scores on this dimension signified higher levels of research anxiety among the respondents.

Table 2. Subscale median, range and mean scores

Subscale	*Mdn*	*Ra*	*M*	*SD*
Usefulness of Research for Professional Practice ▪ Research is useful for my career ▪ Research is connected to my field of study ▪ The skills I have acquired in research will be helpful to me in the future ▪ Research should be compulsory in my professional training	6.25	3.25 – 7	6.14	.78
Anxiety about Research (recoded) ▪ Research courses make me anxious ▪ Research courses scare me ▪ Research courses are stressful ▪ Research courses make me nervous	4.20	1 – 7	4.19	1.42
Positive Research Predisposition ▪ Research courses are difficult ▪ I enjoy my research course(s) ▪ I love research courses ▪ I find research courses interesting ▪ Research courses are pleasant	5.38	2.75 – 7	5.27	.99
Overall Attitude Towards Research Score	15.5	8.15 – 21	15.6	2.38

Age and ATR

In order to establish whether or not there was a relationship between different age groups and attitudes towards research, a one-way analysis of variance was conducted. The results showed that there was no significant difference found among the different age groups, $F(3, 96) = .828$, $p > .05$. Additionally, as can be seen in Table 3, the influence of age on each of the three subscales was not established.

Table 3. Age differences in Attitudes towards Research

Factors	*Age (years)* 21-25 *n* = 45		26-30 *n* = 26		31-35 *n* = 19		36+ *n* = 10			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Usefulness of Research	5.92	.83	6.33	.75	6.29	.66	6.38	.65	2.31	.081
Anxiety about Research	4.19	1.43	4.29	1.66	4.15	1.38	4.04	.89	.085	.968
Positive Research Disposition	5.09	1.01	5.43	.93	5.43	1.05	5.33	.91	.923	.433
Overall Attitude	15.20	2.48	16.05	2.33	15.87	2.59	15.74	1.52	.828	.482

Gender and ATR

In terms of the relationship between gender and attitudes, Table 4 shows that males had more positive research dispositions than females, $F(1, 98) = 18.16$, $p < .05$. However, there was no significant gender difference in the overall ATR mean scores, $F(1, 98) = 2.86$, $p > .05$.

Table 4. Gender differences in Attitudes towards Research

Factors	Gender Males *n* = 48		Females *n* = 52					
	M	*SD*	*M*	*SD*	*MS*	*df*	*F*	*p*
Usefulness of Research	6.29	.67	6.00	.847	2.05	1 98	3.49	.065
Anxiety about Research	4.05	1.39	4.32	1.46	1.77	1 98	.870	.353
Positive Research Disposition	5.67	.86	4.89	.96	15.10	1 98	18.16	.000047*
Overall Attitude Score	16.02	2.11	15.22	2.56	15.91	1 98	2.86	.094

* means $p < .05$

Study Program and ATR

Analyses were also conducted to see if the program of study (whether Master's or Doctoral) had any effect on students' attitude towards research. From Table 5, it can be deduced that there was a significant difference in the research anxiety levels of Doctoral and Master's degree levels students. Since all of the items in this subscale were reverse-coded, higher mean scores represent lower anxiety levels. In this case, Master's degree students had significantly higher levels of anxiety than Doctoral students, $F(1, 98) = 4.71$, $p < .05$. In addition, the overall attitude scores across all subscales indicate that Doctoral students had more favorable attitudes towards research than their Master's degree counterparts, $F(1, 98) = 5.77$, $p < .05$.

Table 5. Program of study and attitudes towards research

Factors	Master's *n* = 79		Doctoral *n* = 21					
	M	*SD*	*M*	*SD*	*MS*	*df*	*F*	*p*
Usefulness of Research	6.07	.81	6.42	.58	2.00	1 98	3.396	.068
Anxiety about Research	4.04	1.43	4.78	1.26	9.21	1 98	4.71	.032*****
Positive Research Disposition	5.21	1.05	5.49	.68	1.29	1 98	1.331	.251
Overall Attitude Score	15.31	2.41	16.69	1.97	31.19	1 98	5.77	.018*****

* means $p < .05$

Nationality Status and ATR

Comparisons were made between Chinese and respondents of other nationalities in terms of their attitudes towards research. While this comparison has no theoretical basis, the researchers attempted to establish whether or not there could be cultural differences between Chinese students and their counterparts, who were predominantly from Africa and Asia, particularly Pakistan. While all of the Chinese respondents were self-paying students, the international students were all scholarship recipients. The results showed a significant difference in the perceptions about research usefulness, as well as positive research disposition subscales, $F(1, 98) = 10.17$, $p < .05$ and $F(1, 98) = 5.52$, $p < .05$, respectively. However, in overall terms, there was no statistically significant difference found between the Chinese and international students in their attitude towards research, $F(1, 98) = 3.52$, $p > .05$ (see Table 6).

Table 6. Nationality status and attitudes towards research

Factors	Chinese *n* = 46		Other *n* = 54					
	M	*SD*	*M*	*SD*	*MS*	*df*	*F*	*p*
Usefulness of Research	5.89	.88	6.36	.60	5.61	1 98	10.173	.002*
Anxiety about Research	4.22	1.50	4.17	1.37	.05	1 98	.026	.873
Positive Research Disposition	5.02	1.05	5.48	.89	5.15	1 98	5.517	.021*
Overall Attitude Score	15.13	2.73	16.01	1.98	19.42	1 98	3.515	.064

* means $p < .05$

Number of research courses taken and attitudes towards research

Table 7 describes the relationship between number of research courses taken and students' attitude towards research. Two groups of students were compared; those who reported zero to one course, and those who indicated two or more courses. While there was no significant difference found between the two groups in terms of overall mean attitudes ($F(1, 98) = 1.033$, $p > .05$), there was a significant difference found between the groups with

regard to research anxiety. Those who had previously taken two or more research courses, generally, had lower research anxiety than those who had only taken one course or none at all ($F(1, 98) = 9.084$, $p < .05$).

Table 7. Number of research courses and attitudes towards research

Factors	Number of Courses 0-1 *n* = 35		2+ *n* = 65					
	M	*SD*	*M*	*SD*	*MS*	*df*	*F*	*p*
Usefulness of Research	6.27	.74	6.07	.79	.90	1 98	1.493	.225
Anxiety about Research	3.63	1.33	4.50	1.39	17.04	1 98	9.084	.003*
Positive Research Disposition	5.37	1.06	5.21	.95	.58	1 98	.594	.443
Overall Attitude Score	15.27	2.26	15.78	2.44	5.85	1 98	1.033	.312

*means $p < .05$

Generalized self-efficacy and ATR

Based on the literature, an attempt was made to examine the relationship between self-efficacy and attitude towards research. The results in Table 8 show that generalized self-efficacy has a significant positive relationship with each of the three dimensions of the ATR scale, including the overall ATR score. The Pearson Product Moment correlation coefficient (r) of the relationship between students' generalized self-efficacy and the overall attitude towards research was .455, $p < .05$.

Table 8. Generalized self-efficacy and attitudes towards research

		Usefulness of Research	Anxiety about Research	Positive Research Disposition	Total Attitude Score
Generalized Self Efficacy	Pearson Correlation	.483**	.207*	.420**	.455**
	Sig. (2-tailed)	.000	.039	.000	.000
	N	100	100	100	100

Note: ** Correlation is significant at the .01 level (2-tailed)
* Correlation is significant at the .05 level (2-tailed)

Discussion

This study aimed at investigating graduate students' attitude towards research at a normal university in China. In addition to focusing on the overall attitude scores, the study examined students' scores on the individual dimensions of the Revised Attitude towards Research (R-ATR) scale –Usefulness of Research, Anxiety about Research, and Positive Research Disposition (Papanastasiou, 2014). In uncovering the students' research attitudes, the study sought to understand the role of selected demographic variables as well as generalized self-efficacy in influencing these attitudes. In general, the study established that

the attitudes of students were moderately positive. However, there were a number of variations observed, both within the dimensions of the attitude scale and between subject groups. First, the Anxiety about Research dimension had the lowest mean score compared to the other two dimensions. Since all of the items on this subscale were reverse-coded, a relatively lower mean score observed in this study indicates high anxiety towards research. This finding corroborates previous studies which found that students often felt stressed and anxious about statistics and research courses, in general (Forte, 1995; Green et al., 2001; Onwuegbuzie & Wilson, 2003; Papanastasiou, 2005; Wells, 2006). The high anxiety levels recorded point to the need for continued demystification of research among graduate students.

The study's first hypothesis was that there would be a significant difference in research attitudes of students from different age groups. This was, however, not supported. Despite other studies finding a relationship between age and attitudes towards research (Williams & Coles, 2003), the current study did not find any significant differences among the age groups examined. The possible explanation for this is that age may not be a profoundly important factor at the graduate level, since students at this level are arguably, all fully matured. Age may therefore, be less of a significant factor in influencing their attitudes.

The second hypothesis was that gender would significantly influence the students' attitude towards research. This again was not supported, as the overall mean attitude scores of males and females were not found to be significantly different. Interestingly, the study found that males had significantly more positive research predispositions than females. While many studies which found a connection between gender and research attitude usually used unbalanced samples (e.g., Onwuegbuzie, 2000; Papanastasiou, 2005), the gender balance in this study was almost equally balanced (48 males: 52 females). Therefore, the observed differences echo Wilson's (1998) and Williams and Coles' (2003) findings that females may be generally, less enthusiastic about research than males.

In terms of the program of study, Master's degree students were found to have less positive attitudes towards research, but were more anxious about research than their Doctoral counterparts. Familiarity with the research process may explain the Doctoral students' low anxiety levels and more positive research attitudes. Williams and Coles (2003) found that research experience can influence attitudes towards research, as those who have conducted research before tend to be more positive. Besides, Doctoral students are often individuals preparing for university careers in teaching and research, or are already in junior academic roles in the research profession, and as such, they may already have an affinity for research. However, in the context of this study, this conclusion should be taken with caution since our sample was dominated by Master's degree students, with Doctoral students only accounting for 21% of the total sample.

The hypothesis that the Chinese and international students may have different attitudes towards research was not supported. However, there were interesting findings on two of the ATR subscales. International students perceived the usefulness of research more positively than their Chinese counterparts. At the same time, international students demonstrated more positive research dispositions than the Chinese students. However, further research is needed to ascertain the reasoning behind the relatively low interest in research shown among the Chinese sample. Qualitative data could help provide more context in this regard.

Furthermore, a significant relationship was found between research anxiety level and the number of research courses taken. Students who reported having taken two or more research-related courses had lower anxiety levels than those who either took one course or none at all. While the number of research-related courses taken may affect anxiety (Bolin et al., 2012), this variable did not appear to influence the overall research attitude. There was no significant difference in the overall attitudes of students with regard to the number of research courses taken.

Finally, the study examined the association between graduate students' perceived generalized self-efficacy and their attitudes towards research. A significant positive correlation was found between the two variables. This means that when students' self-efficacy was found to be high, their research attitude was equally more positive. Bolin et al. (2012) also argued that students with high self-esteem develop more research interest, and are less anxious about research. The implication of this finding is that instructors should endeavor to promote high research self-efficacy among their students. This can be done by not rushing through a course syllabus, but rather, implementing realistic expectations which allow students to build confidence, as they systematically move from the known to the unknown (Montcalm, 1999).

This study concludes that there is a need to address research anxiety among graduate students, since it can be a significant barrier to effective learning and acquisition of research skills. While the overall picture of students' attitude to research does not seem to raise any concern, a closer analysis of the subscales reveal that a significant number of graduate students dread research. The most affected were the Master's degree students, most of whom had little or no previous experience with research. To allay students' fears towards research, there is a need to create a supportive and friendly environment which can promote a culture of research among students, and allow them to develop research self-efficacy.

While most of the respondents acknowledged the usefulness of research, this may not be an indication that they personally like and identify with research. Rather, it may be that the acknowledgement was made in light of the fact that research was a mandatory requirement for completion of their graduate studies. This may actually, explain why this study's findings (with regard to research usefulness and anxiety) contradicted those of Bolin et al. (2012), who found that when students perceived research to be useful to them, their research anxiety decreased. In the current study, the opposite seems to have been the case.

Limitations and Suggestions for Future Research

The current study could have benefited from the use of a mixed methods approach. For instance, the subscale results raised a number of issues which may have been followed up by interviews in order to provide more insight. In the absence of qualitative data, it is difficult to explain why, for example, students would have positive research dispositions, but still report fear and anxiety about research. Future studies should consider collecting both qualitative and quantitative data, so as to ensure both breadth and depth to their findings.

Another limitation was the small sample used –making generalizations to other universities, let alone other faculties, significantly unreliable. Nevertheless, despite this shortcoming, the current study has provided useful insights about research attitudes, which other studies can build upon. Using much larger and more diverse samples, future studies

can go farther, and explore whether or not cultural differences exist in attitudes towards research, especially in multicultural contexts.

Furthermore, longitudinal collection of data is suggested in order to keep track of the changes in attitudes. For example, it can be more helpful to determine baseline attitude levels of students before and after attending a research methods course. Such a design may provide not only information about the students' attitudes, but also the relative effectiveness of instructional methods.

Notes

Corresponding author: PAUL KAKUPA

References

Bolin, B., Lee, K. H., GlenMaye, L. F., & Yoon, D. P. (2012). Impact of Research Orientation on Attitudes Toward Research of Social Work Students. *Journal of Social Work Education, 48*(2), 223-243.

Bryman, A. (2008). *Social Research Methods.* Oxford: Oxford University Press.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. New York: Sage Publications.

Elmore, P. B., & Lewis, E. L. (1991, April). *Statistics and computer attitudes and achievement of students enrolled in applied statistics: Effect of computer laboratory*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Forte, J. (1995). Teaching statistics without sadistics. *Journal of Social Work Education, 31*(2), 204-308.

Green, R. G., Bretzin, A., Leininger, G., & Stauffer, R. (2001). Research learning attributes of graduate students in social work, psychology, and business. *Journal of Social Work Education, 37*(2), 333-341.

Johnson, B., & Christensen, L. (2017). *Educational Research: Quantitative, Qualitative and Mixed Approaches*. Los Angeles: Sage.

Korkmaz, A., Cole, J. S., & Buckley, J. A. (2010, April-May). *The effects of undergraduate research experience for STEM majors: A longitudinal study.* Paper presented at the annual meeting of the American Educational Research Association Conference, Denver: CO.

Lazar, A. (1991). Faculty, practitioner, and student attitudes toward research. *Journal of Social Work Education, 27*(1), 34-40.

Ma, X. (1995). Factor structure of attitudes toward mathematics among high, average, and low achieving high school senior students in the Dominican Republic. *Focus on Learning Problems in Mathematics, 17*(4), 20-35.

Maschi, T., Bradley, C., Youdin, R., Killian, M. L., Cleaveland, C., & Barbera, R. A. (2007). Social work students and the research process: Exploring the thinking, feeling, and doing of research. *Journal of Baccalaureate Social Work, 13*(1), 1-12.

Monahan, T.C. (1994, February). *The usefulness and motivational value of research methods courses for education professionals.* Paper presented at the annual meeting of the Eastern Educational Research Association, Sarasota, FL.

Montcalm, D. M. (1999). Applying Bandura's theory of self- efficacy to the teaching of research. *Journal of Teaching in Social Work, 19*(1/2), 93-107.

Moore, L. S., & Avant, F. (2008). Strengthening undergraduate social work research: Models and strategies. *Social Work Research, 32*(4), 231-235.

Morris, T. (1992). Teaching social workers research methods: orthodox doctrine, heresy, or an atheistic compromise. *Journal of Teaching in Social Work, 6*(1), 41-62.

Murtonen, M. (2005). University students' research orientations: Do negative attitudes exist toward quantitative methods? *Scandinavian Journal of Educational Research, 49*(3), 263-280.

Nasser, F. M. (2004). Structural model of the effects of cognitive and affective factors on the achievement of Arabic-speaking pre-service teachers in introductory statistics. *Journal of Statistics Education, 12*(1). Retrieved from www.amstat.org/publications/jse/v12n1/nasser.html.

Onwuegbuzie, A. J. (2000). Attitudes toward statistics assessments. *Assessment & Evaluation in Higher Education, 25*(4), 325-343.

Onwuegbuzie, A. J. (2003). Modeling statistics achievement among graduate students. *Educational and psychological measurement, 63*(6), 1020-1038.

Onwuegbuzie, A. J., & Wilson, V. A. (2003). Statistics anxiety: nature, etiology, antecedents, effects and treatments- a comprehensive review of the literature. *Teaching in Higher Education, 8*(2), 195-209.

Pan, W., & Tang, M. (2004, April). *Students' perspectives on factors of statistics anxiety and intervention strategies.* Paper presented at the American Educational Research Association Conference, San Diego, CA.

Papanastasiou, E. C.(2005). Factor structure of the "attitudes toward research" scale. *Statistics Education Research Journal, 4*(1), 16-26. Available at http://www.stat.auckland.ac.nz/serj.

Papanastasiou, E. C. (2014). Revised-Attitudes Toward Research Scale (R-ATR): A First Look at its Psychometric Properties. *Journal of Research in Education, 24*(2), 146-159.

Papanastasiou, E. C., & Zembylas, M. (2008) Anxiety in undergraduate research methods courses: its nature and implications, *International Journal of Research* & *Method in Education, 31*(2), 155-167.

Petrovich, A. (2004). Using self-efficacy theory in social work teaching. *Journal of Social Work Education, 40*(3), 429-443.

Rabatin, J., & Keltz, L. B. (2002). Generalized anxiety and panic disorder. *The Western Journal of Medicine*, *176*(3), 164-168.

Rezaei, M., & Zamani-Miandashti, N. (2013). The Relationship between Research Self-efficacy, Research Anxiety and Attitude toward Research: A Study of Agricultural Graduate Students. *Journal of Educational and Instructional Studies in the World, 3*(4), 69-78.

Roberts, D. M., & Bilderback, E. W. (1980). Reliability and validity of a Statistics Attitude Survey. *Educational and Psychological Measurement, 40*(1), 235-238.

Royce, D., & Rompf, E. (1992). Math anxiety: A comparison of social work and non-social work students. *Journal of Social Work Education, 28*(3), 270-278.

Rubin, A., & Babbie, E. R. (2011). *Research methods for social work*. Belmont, CA: Brooks/Cole Cengage.

Russel, S. H., Hancock, M. P., & McCullough, J. (2007). Benefits of undergraduate research experiences. *Science*, *316*(5824), 548-549. Retrieved from www.sciencemag.org.

Secret, M., Rompf, E. L., & Ford, J. (2003). Undergraduate research courses: A closer look reveals complex social work student attitudes. *Journal of Social Work Education, 39*(3), 411-422.

Unrau, Y. A., & Grinnell, R. M. (2005). The impact of social work research courses on research self-efficacy for social work students. *Social Work Education, 24*(6), 639-651.

Wainstock, S. L. (1994). Swimming against the current: Teaching research methodology to reluctant social work students. *Journal of Teaching in Social Work, 9*(1/2), 3-16.

Walters, C. J., Collie, J. S. & Webb, T. (1988). Experimental designs for estimating transient responses to management disturbances. *Canadian Journal of Fisheries and Aquatic Sciences, 43*, 830-837.

Wells, M. (2006). Making statistics "real" for social work students. *Journal Education for Social Work, 42*(2), 397-404.

Wells, M., Maschi, T., & Yoder-Slater, G. (2009, November). *Promising practices in social work research education: Findings, innovations, and live demonstrations.* Paper presented at the Council on Social Work Education Annual Program Meeting, San Antonio, TX.

Williams, D., & Coles, L. (2003).*The Use of Research by Teachers: Information literacy, access and attitudes*. Scotland: Department of Information Management, Aberdeen Business School, The Robert Gordon University.

Wilson, V. A. (1998, November). *A study of reduction of anxiety in graduate students in an introductory educational research course. Paper* presented at the annual meeting of the Mid-South Educational Research Association, New Orleans, LA.

Wise, S. L. (1985). The development and validation of a scale measuring attitudes toward statistics. *Educational and Psychological Measurement, 45*(2), 401-405.

Woelke, P. L. (1991, April). *An examination of the factor structure of Wise's attitude toward statistics scale*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Zeidner, M. (1991). Statistics and mathematics anxiety in social science students: Some interesting parallels. *British Journal of Educational Psychology, 61*(3), 319-328.