

# Relationship between Information Seeking Skills and Research Self-Efficacy of Postgraduate Students

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## Abstract

The study aims to examine the correlation between information seeking skills research self-efficacy of postgraduate (Master) students. A sample (n = 63) of postgraduate students enrolled at University of Karachi was utilized for the purpose of study. The study adopted descriptive correlational research design. Two validated scales, Research Self-Efficacy Scale developed by Holden, Gary, K. Barker, T. Meenaghan, G. Rosenberg (2007), and Information Seeking Skills Questionnaire constructed by Meerah and his colleagues (2011) was administered to gather data. For analyzing the data, the descriptive statistics were applied to find out the levels of research self-efficacy and information seeking skills. Furthermore, Pearson's Product Moment Correlation (r) was used to analyze the correlation of the variables. The study concluded that the mean scores of information seeking skills of the postgraduate students was 3.73 while their research self-efficacy score was 3.446. Moreover, the results indicated that there is a positive and significant relationship between information seeking skills and research self-efficacy ( $r = 0.491, P < 0.001$ ). In line with the obtained results, it is recommended that the information seeking skills should be incorporated and practiced in research courses as well as students should be motivated to take part in research projects to improve their research self-efficacy.

**Keywords:** Research Self-Efficacy; Information Seeking Skills; Information Seeking; Postgraduate Students.

## 1. Introduction

Literature search is the first and foremost step if one aims to embark on research. According to Best and Kahn (1986), reviewing the related literature assists in determining what work has already been done in a particular area of interest, and helps in formulating hypotheses as well as provides suggestions for inquiry that is of more relevance and significance [1].

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Moreover, it offers conceptual and theoretical backup for the research, determines preferable research design to employ, suggests appropriate research instruments, desirable population and also provides a researcher with a body of knowledge needed for interpreting the research findings. Literature search refers to the process of locating, analyzing, and assessing the findings of research, and other types of information concerning the intended research topic [2] and this should be carried out systematically, to attain to the point results and avoid deviations from the goal. However, a bulk of information is produced all over the globe, on a daily basis, on/through diverse mediums which puts a question mark over the reliability and authenticity of the information. This plenty of information from a variety of sources confuses the information seekers in finding the answers to their questions [3]. This requires individuals to reorient their information seeking behavior and acquire information seeking skills that is one of the basic requirements for the research process. The studies on information seeking behaviors has been carried out in various subject areas of social sciences, and science and technology, and can be traced back to the 1950s. Since then experts have proposed multiple models in an attempt to explain information seeking behavior and skills involved in it. "Information seeking skill is the awareness of various sources of information that are available. It is the ability to search, use, and evaluate information." [4]. Eisenberg and Berkowitz (1992) presented *Big Six (Big6) Skills* of seeking information [5]. These skills involve;

- *Task definition*-defining information problem and what type of information has to be gathered
- *Information Seeking Strategies*-decide the appropriate sources of information
- *Location and Access*-putting the information seeking strategies in to effect
- *Use of Information*- collected information is subjected to questions and reflection to extract out necessary information
- *Synthesis*- combining, reorganizing, and manipulating the collected information into a new form
- *Evaluation*- assess whether the employed information meet the requirements of task

Information seeking skills facilitates the research process, however, in addition to it, research self-efficacy is also a factor in the research process [6]. Lev et.al (2010) define research self-efficacy as "confidence of students in their ability and perception of their research skills" [7]. Research claims that depressed research self-efficacy impedes research training as well as willingness to pursue research tasks of students, in contrast increased research self-efficacy is a key factor associated with students success and pursuing research even after their graduate studies [8,9]. Regardless of the fact that information seeking skills tend to enhance postgraduate students' confidence in engaging in research activities, it is not known whether a correlation exists between information seeking skills and self-efficacy related to research of postgraduate students, that signifies the importance of the study undertaken. The current study intends to find out the correlation between research self-efficacy and information seeking skills in postgraduate (Master) students using quantitative approach and utilizing Research Self-Efficacy Scale [10], and Information Seeking Skills Questionnaire [11].

### **1.1 Research Self-Efficacy**

Self-efficacy is a principle notion in the Social Learning Theory proposed by Albert Bandura [11,12]. Self-efficacy is an important psychological construct, which implies an individual's apprehension of his or her ability

to carry off a certain task, skillfully and successfully. This confidence “determine how people feel, think, motivate themselves and behave” [13]. The greater the sense of self efficacy for a task, the more likely for an individual to aspire for other domain-specific goals [14]. What choices an individual makes and the amount of efforts he would put in achieving a task in life is also determined by self-efficacy. Many authors have associated self-efficacy theory with the process of research [15,16]. Research self-efficacy is a kind of self-efficacy, and is one’s perception and belief in successfully realizing the functions related to conducting the research that involves reviewing the literature, writing and performing the data analysis. Students who tend to have higher research self-efficacy had faith in their competence, the ability to look into information and are more outstanding in research, in contrast to those who have low self-efficacy and have no confidence in their ability to conduct research, often feel unskillful and anxious [18,19]. Low research self-efficacy beliefs may prove to be a factor in lack of interest in research and involvement in research undertakings. Niehaus, Garcia, and Reading (2018) have stressed the crucial role of research self-efficacy in the forming of independent researchers [20]. Chesnut, Siwatu, Young, and Tong (2015) asserted that the confidence of an individual about his or her ability of designing study, collect and analyze data, also write a methodic manuscript may impact research-related goals, expectancy of conducting research, and the efforts put forth in the process of research [21]. And, therefore, in relation to this, self-efficacy is a significant attribute of research interest and productivity [22] and are positively correlated [23]. According to Garavand, Kareshki, and Ahachian (2014), research self-efficacy is the mark of success in the postgraduate phase and adds to the performance of scholars [19]. High research self-efficacy as asserted by Kahn (2001) make graduate students set more challenging goals concerning research, keep positive expectations for their involvement, and add to the recurrence of research behaviors [24]. Research self-efficacy beliefs are responsible for the variability in research productivity among postgraduate students [21]. Research self-efficacy is deemed to predict research interest and productivity of postgraduate students [25,26]. Research self-efficacy has also found to be interconnected with motivation. It has been proved that postgraduate students with elevated research self-efficacy turn out to be more motivated for carrying out research undertakings in relation to their peers and are more persistent in the face of challenges, leading to research productivity.

### ***1.2 Information Seeking Skills***

Gilmore and Feldon, (2010) contend that it is necessary for undergraduate students as they prepare for post graduate education to improve their research skills [27]. But more than undergraduate students, postgraduate students must be equipped with these skills as they are involved in research directly or indirectly in their respective professional settings. In this regard, postgraduate students learn these research skills in the course of the formal curriculum as a part of subjects of research methods, research report/ thesis writing and computer studies. There are certain research skills that helps the researcher to locate and utilize computers, software, electronic databases and various technological means for the purpose of attaining academic and research goals. With the flood of information and its access to everyone, it is necessary for current and future generations of students to be able to identify, handle and utilize the correct information, both, in terms of authenticity as well as relevancy. For this purpose, postgraduate students must acquire information seeking skills to ensure their success in research. Marchionini (1997) defines information seeking as “a process in which humans engage to purposefully change their state of knowledge. The process is inherently interactive as information seekers direct

attention on adaptation to stimuli, reflect on progress, and evaluate the efficacy of the knowledge base of the information seeker” [28]. Information seeking is a cybernetic process which involves alteration in the state of knowledge through inputs, purposive outputs, and feedback. Skills pertaining to information seeking is the realization of various mediums of information available out there and involves searching, retrieving, evaluating and applying the valid content. The searching may be implied or explicit following serendipitous results or results of specific strategies, consequently, the information may be used or rejected. The process may conclude logically or discontinued in the middle. Therefore, HEIs, nowadays, makes it compulsory for students to learn courses on the computer or information literacy along with the courses on research methodology to enable students to seek information pertaining to specific research goals. Despite of the fact, several researchers have found that the students face obstacles in searching information in cyberspace, collection of data, selection of data, operating computers and accessing internet and software [29,30,31,32].

### ***1.3 Relationship between Information Seeking Skills and Research Self-Efficacy***

Weiler (2005) regarded information seeking as a “highly subjective process” which is affected by various factors including seeker’s personal factors and attributes [33]. The affective or emotional states amid the process of searching have potential to influence the performance of the search [34]. Wilson (1997) put forward that the notion of self-efficacy “can be applied as a general concept determining information behavior” and hypothesized “that an individual may be aware that use of an information source may produce useful information, but doubt his or her capacity to access the source” [37]. Other affective factors that play part in information seeking behavior involve uncertainty [36,37], satisfaction, optimism [36], positive and pessimist views towards the search [34,38], and perceived self-efficacy [34,39]. A research conducted by Malliari, Korobili, Zapounidou (2011) concluded that perceived ability played a major role in defining information seeking behavior [40]. When shedding light on the interrelationship between the self-efficacy and information seeking skills a research conducted by Bandura & Jourden (1991) have shown that individuals with elevated self-efficacy perform considerably better in integrating and utilizing complex information [41]. Udem and Anaehobi (2020) found no significant affiliation within information literacy skills and research self-efficacy among Library and Information Sciences’ postgraduate students [42]. A study confirmed that students with depressed self-efficacy felt being incompetent to practice self-control and focus while searching for information [43] that is there is an association between low self-efficacy and retrieval failure. Employees holding high self-efficacy are more efficacious in seeking, integrating, and using information than the personnel with low self-efficacy [44]. Moreover, when correlating several variables in a study, Tella (2009) asserted that self-efficacy was found to have the highest correlation with information-seeking behaviors of undergraduate students [45]. Self-efficacy related to computer and internet that is defined as the perceived ability to operate computers, searching internet and web-based information sources (databases and e-journals), is ascertained to be highly correlated with information seeking [44,45,39,46]. Furthermore, high self-efficacy and positive attitude are significant determinants of success in information tasks [47]. Since the research has established high correlation between self-efficacy beliefs and information seeking behavior [45], it can be assumed that this correlation will ultimately lead to a connection between research self-efficacy and information seeking skills of the postgraduate students.

### ***1.4 Objectives of the Study***

The research is guided by objectives given below;

- To identify the levels of research self-efficacy of post graduate (Master) students.
- To ascertain the levels of information seeking skills of post graduate (Master) students.
- To ascertain how much the information seeking skills predicts research self-efficacy of post graduate (Master) students.
- To find out the interrelationship of information seeking skills with research self-efficacy of post graduate (Master) students.

### ***1.5 Research Questions***

The purpose of the study is to determine the interconnection between information seeking skills and self-efficacy for research among postgraduate (Master) students. The following research questions are designed to meet the objectives of study;

- What is the measure of information seeking skills of post graduate (Master) students?
- What is the measure of research self-efficacy of post graduate (Master) students?
- Does an association of research self-efficacy with information seeking skills of post graduate (Master) students, statistically significant?

### ***1.6 Hypotheses***

H<sub>1</sub>= There is a positive correlation between information seeking skills and research self-efficacy of postgraduate (Master) students.

## **2. Materials and Methods**

### ***2.1 Research design***

The present study is a quantitative study and employ correlational research design. A correlational research is used to quantitatively examine a relationship between two variables without the researcher intervention or controlling either of them. The degree of relationship is denoted by coefficient of correlation, a number ranging from -1 to +1. Accordingly, correlational research design is employed to ascertain the extent of connection between information seeking skills and research self-efficacy.

### ***2.2 Population and Sampling***

Population for the study is composed of the post graduate (Masters) students enrolled in the Faculty of Education and Faculty of Social Sciences at University of Karachi. A total of 63 participants (N=63) voluntarily responded to fill the questionnaire. A voluntary response sampling occurs when 'a group of individuals is

invited to respond, and those who respond are counted' [48].

### **2.3 Instrumentation**

**Research Self- Efficacy:** Research Self- Efficacy Scale (Holden, Gary, K. Barker, T. Meenaghan, G. Rosenberg, 2007), a self-report measure of confidence in one's ability to perform research related behaviors [10]. The internal consistency of the Research Self-Efficacy Scale, measured using Cronbach's coefficient alpha, is significant that is,  $\alpha = .94$ . The internal reliability coefficient of the Research Self-Efficacy Scale is reported as  $\alpha = .95$ . Holden and his colleagues (1999) also found construct validity of the measure [49].

**Information seeking Skills:** The information seeking questionnaire developed by Meerah and his colleagues (2011) is face validated based on the experts' judgement regarding the components of research skills were adapted from the research body [4]. The internal consistency methods were used to inspect the reliability of the constructs and found to have reliability.

### **2.4 Procedure**

In the process of data collection, the researcher personally approached students and requested them to fill the research scales. Due to closure of educational institutions by reason of Covid-19, the researcher found it challenging to reach the desired respondents physically, therefore, the online method was also adapted. Physical forms along with Google forms were distributed to students in reach, and were requested to forward them to others they know of the desired sample of study. The University's official Facebook platform was also brought into service for data collection.

## **3. Results**

The findings are presented in the same arrangement as research questions. The current study attempted to find the covariance between research self-efficacy and information seeking skills among postgraduate (Master) students.

Table 1 reveals that collectively, students' information seeking skills with respect to research is 3.73 which is inferred as "agree" or "high". The mean values of individual items also support this inference. Evaluating each item independently, the results show that students agree that they pre-plan on the type of sources (3.428) and are aware that information can be accessed through various mediums (4.190). Students also agreed that they realize that journals are a more authentic source of information (4.285) and they look for keywords and synonyms in the course of finding literature (3.555). Moreover, they were well aware of the impact of contextual (3.809) and time factors (3.730) on the information. In addition, they possessed high skills in writing the main ideas in their own words (3.746), using the main ideas to back up their topic (3.857), combing two or more ideas to formulate a new idea (3.507) as well as they had high skills in constructing their own conclusions (3.857).

**Table 1:** Information Seeking Skills of Postgraduate Students

|   | <b>Mean</b> | <b>SD</b>    | <b>DR</b>         |
|---|-------------|--------------|-------------------|
| Premeditate the types of information  | 3.428       | 1.027        | Agree             |
| Information in journals is more often checked, and criticized                   | 4.285       | 0.771        | Strongly<br>Agree |
| Aware that information can be obtained through various means                    | 4.190       | 0.981        | Agree             |
| Synonyms, themes or key words   | 3.555       | 0.911        | Agree             |
| Read dictionaries/ encyclopedia articles for understanding                      | 3.428       | 0.979        | Agree             |
| Using key words, if my topic of research is too narrow                          | 3.603       | 0.852        | Agree             |
| Use truncation in research or use root words to start my search.                | 3.492       | 0.895        | Agree             |
| Conduct the search according to the field                                       | 3.809       | 0.692        | Agree             |
| Re-look at the strategy to find information again not successful the first time | 3.634       | 0.938        | Agree             |
| Evaluating the accurateness of the content                                      | 3.571       | 0.945        | Agree             |
| Understand the contextual effect can influence the information                  | 3.809       | 0.877        | Agree             |
| Time as a factor influencing the relevance of the information                   | 3.730       | 0.787        | Agree             |
| Arranging the items systematically  | 3.714       | 0.887        | Agree             |
| Storing items into my disk or to my email                                       | 3.920       | 0.747        | Agree             |
| Writing important concepts in my own words                                      | 3.746       | 0.782        | Agree             |
| Using main ideas to support my topic  | 3.857       | 0.779        | Agree             |
| Combine the main ideas to form a new idea                                       | 3.507       | 0.877        | Agree             |
| Constructing my own conclusion  | 3.857       | 0.715        | Agree             |
| <b>Composite mean</b>   | <b>3.73</b> | <b>0.858</b> | <b>Agree</b>      |

**Table 2:** Research Self-Efficacy of Postgraduate Students

|   | <b>Mean</b>  | <b>SD</b>    | <b>DR</b>    |
|---|--------------|--------------|--------------|
| Do effective electronic database searching          | 3.015        | 1.054        | Neutral      |
| Using various technological advances effectively    | 4.095        | 0.665        | Confident    |
| Writing a balanced literature review                | 3.365        | 0.725        | Neutral      |
| Formulating a clear research question or hypothesis | 3.460        | 0.736        | Confident    |
| Choosing a research design                          | 3.444        | 0.757        | Confident    |
| Choosing sampling strategy                          | 3.460        | 0.736        | Confident    |
| Choosing measurement approach                       | 3.444        | 0.735        | Confident    |
| Design the best data analysis strategy              | 3.317        | 0.714        | Neutral      |
| Presenting the study and its implications           | 3.412        | 0.754        | Confident    |
| <b>Composite mean</b>                               | <b>3.446</b> | <b>0.764</b> | <b>Agree</b> |

The data presented in Table 2 shows that as a whole, students’ research self-efficacy is 3.446 which means that their confidence is “high” in conducting research and the processes involved in it. The respondents were confident in using various technological means to carry out research (4.095), formulating relevant hypotheses and research questions (3.460) as well as in choosing and implementing precise sampling technique (3.460), and instrument (3.444). However, students avoided deciding between two sides whether they can perform electronic database search effectively (3.015), or write a balanced literature review (3.365). Neither, they can decide on selection of appropriate data analysis (3.412).

**Table 3:** Pearson *r* Correlation between Research Self-Efficacy and Information Seeking Skills of Postgraduate Students

|     |                     | ISS    | RSE    |
|-----|---------------------|--------|--------|
| ISS | Pearson Correlation | -      | .491** |
|     | Sig. (2-tailed)     |        | .000   |
|     | N                   | 63     | 63     |
| RSE | Pearson Correlation | .491** | -      |
|     | Sig. (2-tailed)     | .000   |        |
|     | N                   | 63     | 63     |

Note. \*\* Correlation is significant at the 0.01 level (two-tailed)

A Pearson correlation was employed to ascertain the relationship between information seeking skills and research self-efficacy. There is a moderate, positive correlation of information seeking skills and research self-efficacy, meaning it is statistically significant ( $r = .491, n = 63, p = 0.01$ ) as shown in table 3.

#### 4. Discussion

Using a positive covariance between self-efficacy and information seeking behavior as a ground for the current study, it was assumed that research self-efficacy and information seeking skills will have a possible positive correlation as well, which is further proved by the finding of the present study. The findings of the study shows that the correlation between research self-efficacy and information seeking skills of postgraduate (Master) students is ( $r = 0.491, p < 0.001$ ) which is interpreted as a moderate, positive relationship. Tella (2009) also concluded a positive relation between research self-efficacy with information seeking behavior [45]. Furthermore, computer and self-efficacy related to internet is found to be correlated with information seeking [50,51,52]. Research self-efficacy is a predictor of interest of postgraduate students in research activities, leading to research productivity [26]. Bronstein (2014) concluded that students displayed high self-efficacy in regard to their information searching skills [53]. Savolainen (2012) also considered self-efficacy as a motivational factor in information-seeking behavior [54]. Moreover, Tsai and Tsai (2003) contended that high



self-efficacy brings about effective internet searching in web-based science learning [39]. The mean scores of postgraduate students' information seeking skills is found to be 3.73 that is they possess high information seeking skills. Moreover, the postgraduate (Master) students' research self-efficacy level is high as indicated in the table 2 which is consistent with the findings of Brosnan (1998), Koch (1999), Breivik (2002) and Correia (2002) that in majority cases students are certain of their self-efficacy [55,56,57,58]. The current study has the following limitations; Firstly, the research instruments required the respondents to report about their research self-efficacy and information seeking skills by means of self-report measures and, therefore, there may be difference between reported behavior and actual behavior of the respondents. Secondly, the study included non-probability voluntary responding samples of students at a specific university, therefore, the results should be carefully interpreted and should not be generalized. The future research should further study level of information seeking skills and research self-efficacy as independent constructs, and investigate the correlation among these variables at larger and diverse academic population including undergraduate and graduate students as well, especially in Pakistani context where there is a dire need to improve research efficiency among students and professionals. The future research can also be conducted on the different factors mediating this correlation between research self-efficacy and information seeking skills.

## **5. Recommendations**

Research self-efficacy and information seeking skills are imperative for the research productivity of research scholars. It is therefore suggested;

- That teachers should teach students how to acquire as well as utilize information seeking skills when teaching the research course as it gives confidence to exercise these skills in the research endeavors.
- To promote research-based education that fosters positive attitude towards research and information seeking among students. And this positive attitude in turn is a prerequisite for acquiring information literacy skills (Owusu-Ansah, 2003).
- To encourage students to take part in research workshops, symposiums, conferences, seminars and other hands-on research activities, as it contributes in improving research self-efficacy (Chisenga, Kedemi and Sam, 2015).

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