INFORMATION CULTURE AS DETERMINANT OF RESEARCH SELF-EFFICACY AMONG GRADUATE STUDENTS

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ABSTRACT

The study aimed to determine which domain of information culture as determinant best influences the research self-efficacy among graduate students. A non-experimental quantitative research design employing the descriptive correlational technique was utilized in this study. The research used adapted questionnaires modified to suit the study's objectives. A total of 301 graduate students at the University of Mindanao selected through stratified random sampling were surveyed. Mean, Pearson-r, and regression analysis were statistical tools employed in analyzing and interpreting the data. The results showed a high level of information culture and research self-efficacy among graduate students. Moreover, it was found that there is a significant relationship between the two variables. Among the indicators of information culture as determinants, the integrated information culture and proactive information culture were the domains that best influenced the research self-efficacy among graduate students.

INTRODUCTION

Research has been the silent curriculum partner in preparing students for professional work. However, many postgraduate students suffer from anxiety and doubt over their research abilities, resulting in poor research self-efficacy and hindering motivation and achievement (Tiyuri et al., 2010). Few master-level individuals participate in research projects, and most have little or no interest in research (Blishak & Cheek, 2001). Razaei and Zamani-Miandashti (2013) also found that inadequate research self-efficacy affects learners' master's programs and desire to undertake a study. As a result, higher education institutions are pressured by both the government and employers to produce self-efficient graduates in research, hence being more employable (Parker & Griesel, 2009).

The usefulness of research self-efficacy arises from the effects of work that learners are inclined to dedicate throughout their study, which influences their success (Hemmings & Kay, 2009). Self-efficacy is associated with an individual's belief in their capacity to achieve goals due to their actions. It is a critical factor in influencing the success of the student's research (Levi et al., 2010). Hence, it is of utmost importance that the students have a high level of self-efficacy to feel in their ability to explore and are much more effective in their research (Garavand et al., 2014). In line with this, Forester et al. (2004) agreed that learners' research work and efficiency are strengthened by research self-efficacy.

The value and use of information in attaining organizational development are acknowledged in an information culture, and it serves as the foundation for corporate decision-making (Curry & Moore, 2003). As Lauri et

al. (2016) stated, information culture is directly related to information management, its use, and flow, resulting in organizational and individual research efficacy.

Within this perspective, the researcher deemed it remarkable to find whether information culture influences graduate students' research self-efficacy, as this could raise concerns and arguments to the intended beneficiaries of this study. A thorough examination of the University of Mindanao's information culture may provide insights into how it boosts or affects graduate students' research self-efficacy, especially in this time and age of the information revolution. Moreover, in the search and perusal of studies and literature of the researcher, a similar study on information culture related to research self-efficacy of graduate students has yet to be found. Hence, this research may shed light on graduate schools and school administrators' importance of information culture in a dynamic graduate school environment.

This study aimed to determine which domain of information culture best influences research self-efficacy among graduate students. Specifically, it sought answers to the following objectives: (a) to assess the level of information culture in terms of integrated information culture, proactive information culture, and informal information culture; (b) to ascertain the level of research self-efficacy among graduate students in terms of data analysis self-efficacy; research integration self-efficacy; data collection self-efficacy; and technical writing self-efficacy; (c) to determine the significant relationship between information culture and research self-efficacy among graduate students, and (d) to determine which domain of information culture best influences research self-efficacy among graduate students.

This study is anchored on the social cognitive theory developed by Bandura (1986), which refers to a process of a triadic reciprocal determinism model. This model demonstrates individual interactions as a dynamic combination of cognitive (personal), motivational, and social conditions. When a student is involved in a research endeavor, culture as one aspect of the context will impact the student's innate customized research beliefs (Hedjazi & Behravan, 2011). The environment-related studies and views of Hardre et al. (2011) also support this theory and conclude that frequent and robust academic assistance may influence research self-efficacy where instructors are closely connected to the information culture.

Furthermore, the social cognitive theory emphasizes individual responsibility or the assumption that someone can impose a massive level of authority throughout crucial life circumstances. Self-efficacy is essential in being more motivated, as it represents the concept of engagement or exerting control over learning behaviors (Cattaneo & Chapman, 2010). In addition, by utilizing social cognitive theory as a framework, instructors can strengthen their learners' research self-efficacy. Assist in resolving false ideas and practices of reasoning by changing classroom management settings (information culture or external conditions) to assure educational outcomes. Since an individual, motivation, and aspects of the environment intersect, altering one type of variable, such as self-efficacy, an individual determinant can impact other factors, just as changing the information culture's essential nature (Gutierrez de Blume & Candela, 2018; Hardre et al., 2011; Hedjazi & Behravan, 2011).

METHOD

The researchers employed the quantitative non-experimental research design using the descriptive-correlation technique. The respondents of this study were the 301 Graduate Students of the University of Mindanao under the PACUCUOA accredited programs. They were chosen as respondents because they could answer the survey questionnaires quickly and objectively. Respondents were selected utilizing stratified random sampling, exclusive to graduate students enrolled in the first semester of 2019-2020 across different programs. The research instrument used was standard validated questionnaires adapted from "The information culture of higher education institutions: the Estonian case" by Forester et al. (2004) and "Factor structure of three measures of research self-efficacy" by Laurie et al. (2016). The questionnaire is made of three parts. Part 1 refers to the personal information of the students. Part 2 pertains to the information culture and use, and Part 3 applies to research self-efficacy among graduate students. The data were tallied and classified with the guidance of the statistician. Mean and Pearson r was used to process the gathered data. Results were analyzed and interpreted according to the purpose of the study.

RESULTS AND DISCUSSION

Shown in Table 1 were the responses to the level of information culture among graduate students, which registered an overall mean score of 4.18, which was described as *high*, and a standard deviation of 0.26.

Table 1
Level of Information Culture

Indicator	SD	Mean	Descriptive Level
Informal information Culture	0.33	4.21	Very High
Integrated Information Culture	0.37	4.18	High
Proactive Information Culture	0.37	4.16	High
Overall	0.26	4.18	High

These mean scores were obtained from the computed mean scores of the indicators, namely informal information culture, with a 4.21 mean score or *very high*; integrated information culture, with a 4.18 mean score or *high*; and proactive information culture, with a 4.16 mean score or *high*. The findings suggest that the graduate students experience an information culture, for they are informed about their department's performance and are involved in study-related joint activities outside their departments. They often use informal and formal information sources.

The result is supported by Tien and Chao (2012) that information culture has been studied about teamwork, process development, better performers, and authentic leadership. Likewise, the information culture of an institution is influenced by its management which affects institutional development (Curry & Moore, 2003; Tien & Chao, 2012). Moreover, Choo et al. (2008) demonstrated that information culture behavioral

characteristics and norms might explain a considerable percentage of the diversity in data usage outputs related to institutional efficiency. Also, an uncertain information culture that stimulates transformation, originality, and sources of innovation would necessitate proactive environmental information seeking (Choo, 2013).

The indicator *informal information culture* obtained the highest level of information culture. The result aligned with Fleck (2014) that informal information processes were an integral and vital aspect of competence, required to implement the legitimacy of specific professional organizations' learning and support more formal business procedures. Also, informal communication network in informal information culture shows how communication is facilitated. It is the ultimate comparison of informal information, similar to rumor channels in enterprises, when people from various divisions, regardless of their organization levels, get together and engage with one another (Daniels et al., 2008). The significance of the informal information culture is shown in the reality that this was the dual framework of the formal information method in the implementation of internal operations, which offers assistance for proper ways of communicating or assisting the management in dealing with various circumstances (Pyoria, 2007).

The indicator *integrated information culture* obtained a high level of information culture. The result associated with Suzuki et al. (2019) found that integrated information culture, which practices communication between organizational heads and staff, is positively related to the effectiveness of their knowledge sharing. Integrated information culture is also about information control. In the broadest terms, information control is how management activities are implied and information is

supplied in a regulated manner (Kulba et al., 2003). In addition, an organization with an integrated information culture observes the importance of information transparency. The factor in an integrated information culture that deals with the accessibility to which mistakes and failures are reported and shared helps employees learn from their mistakes (Choo et al., 2008).

The indicator *proactive information culture* obtained a high level of information culture. The result aligned with Lauri et al. (2016) that information pro-activeness entails utilizing data, gaining new knowledge, and implementing valuable data into actionable insights relating to the change, entailing involvement in transformation management. This indicates that pro-activeness involves using official data, reliable, giving individuals evaluation, being honest about mistakes, and disseminating much of this information within the institution. In the different organizational domains, a proactive information culture strategy promotes corporate response to the result of a change (Marchand et al., 2001). Furthermore, pro-activeness is the continuous consideration of gathering and processing new information to promptly cater to emerging trends and drive product and service development (Marchand et al., 2001).

Presented in Table 2 is the summary of the graduate students' responses on the level of research self-efficacy that registered an overall mean score of 4.13 or *High*, indicating that all factors on research self-efficacy were more often manifested in the majority of the students.

The generated overall mean score was the result obtained from the mean scores of 4.14 or *high* for *data analysis self-efficacy*, 4.14 or *high* for *research integration self-efficacy*, 4.13 or *high* for *data collection research self-efficacy*,

and 4.11 or *high* for *technical writing self-efficacy*. Based on these results, the respondents mainly possess the self-efficacy expected of a graduate student, which is the knowledge to use research platforms and statistical tools and identify areas of needed research based on reading the literature. On the other hand, high results also indicate that most of these self-efficacies can still be improved, especially in technical writing and data collection.

Table 2
Level of Research Self-Efficacy

Indicator	SD	Mean	Descriptive Level
Data Analysis Self-Efficacy	0.29	4.14	High
Research Integration Self-Efficacy	0.31	4.14	High
Data Collection Research Self-Efficacy	0.38	4.13	High
Technical Writing Self-Efficacy	0.44	4.11	High
Overall	0.29	4.13	High

The above results mean that graduate students have a high level of research self-efficacy. This is supported by Forester et al. (2004) stated that research self-efficacy is a person's belief in their ability to complete tasks of doing a study correctly. In this connection, self-efficacy fluctuates quality, intensity, and flexibility, which are crucial in choosing the proper assessment. Learners should be able to evaluate overall competence in handling particular concerns, executing various literature or written expression, or determining effective

practices in classroom environments (Pajares, 2002). The higher the individual's self-efficacy, the greater the inclined to choose challenging projects, stick with people, and complete them effectively (Bandura, 1997; Bieschke, 2006). Research self-efficacy has also been associated with increased interest in conducting research and actual research productivity (Lambie & Vaccaro, 2011).

Part of the research self-efficacy is *data analysis self-efficacy* obtained at a high level. This result is supported by Moore and McCabe (2005) stated that this sort of analysis is when data is analyzed and organized into topics and threads while being evaluated. Data analysis self-efficacy is essential for content analysis, which analyzes data from individual consultations. Furthermore, students should possess the critical skills to analyze data and be educated to conduct studies significantly. To gain more significant data insights, scholars need to have a more profound knowledge of the basis for choosing one methodology over others (Cumming et al., 2012). In research, data analysis self-efficacy offers consistent and accurate information. Minimize uncertainties as much as necessary and identify a plan for dealing with typical problems such as exceptions, incomplete information, information retrieval, data gathering, and designing visualization tools. The quantity of data collected regularly is terrifying, particularly since data analysis has become prominent (Cazier, 2018).

The indicator *research integration self-efficacy* obtained a high level. This result is supported by the statement of Forester et al. (2004) that integrating one's work with research, such as a shared identity for investigation, rational thinking for a specific research topic, and producing relevant research topics, are connected to self-efficacy. As enumerated by Bammer (2006), such research involves cooperatively integrating the perspectives of several fields. For example,

environmentalists, historians, oceanographers, anthropologists, environmental scientists, development practitioners, and others can help researchers investigate the effects of invasion on communities. According to Luukkonnen and Nedeva (2010), integration research must be proficient at involving various organizations and integrating their views into the synthesis perspective. The researcher needs to integrate diverse communities' technical skills and attitudes to provide the most extensive view of the situation.

The indicator *data collection research self-efficacy* obtained a high level. The result parallels Rickman (2018) that data collection is an integral part of the research. Without data, research would be crippled and navigating instinctively, trying to attract potential customers. Many firms now collect data online but need help using it. Efficacy in data collection comes in. With efficiency in knowing what data to contain and where to get it, it will be possible to save and evaluate pertinent data regarding current and future research (Halcomb, 2016). Another facet of data collection self-efficacy is ensuring that all data collected are reliable and verifiable across all trials and analyses (Foster et al., 2004).

The indicator of *technical writing self-efficacy* obtained a high level. The result, congruent with Foster et al. (2004), states that it is connected to self-efficacy in creating research papers, such as composing the preface and conversation parts for a research study for publishing and successfully producing a scholarly article. Technical writing is effective communication written or drafted for technical and vocational domains. Standardizing complexity is a term used to describe technical writing. Technical writing is learning English for a Specific Purpose (ESP), a program that teaches English more specifically and makes it instructive (Dubey, 2017). Master's-level professors believe that graduate students

already have writing abilities (Mullen, 2006). In connection, a few works suggest that faculty among graduate students already assume that all masters-level scholars are equipped with technical writing expertise, but this is not the case (Lavelle & Bushrow, 2007; Singleton-Jackson & Lumsden, 2009).

Shown in Table 3 are the results of the significance test on the relationship between the variables involved in the study. The overall correlation had a computed *r*-value of .581 with a probability value of *p<*.05 or *significant*. With an in-depth look at the results, this can be seen that the indicators of information culture, when correlated with the indicators of research self-efficacy among graduate students, revealed overall R-values ranging from 0.152 to 0.642, with probability values of less than p<.05, which is *significant*. Thus, the null hypothesis has no significant relationship exists between information culture and research self-efficacy among graduate students was rejected.

Investigating further, all of the information culture indicators showed a significant correlation with research self-efficacy. Informal information culture, integrated information culture, and proactive information culture were all significantly related to graduate students' research self-efficacy with scores of .152, .453, and .642 R-values, respectively, and less than 0.05 probability values. This implies that all information culture indicators significantly correlate with research self-efficacy. This means the higher the information culture in a graduate school, the higher the research self-efficacy of its graduate student-respondents.

Table 3

Significance of the Relationship between Information Culture and Research Self-Efficacy among Graduate Students

Information Culture	Research Self-Efficacy				
	Data Analysis Self-Efficacy	Research Integration Self-Efficacy	Data Collection Research Self-Efficacy	Technical Writing Self-Efficacy	Overall
Integrated Information Culture	.472** (.000)	.307** (.000)	.359** (.000)	.357** (.000)	.453** (.000)
Proactive Information Culture	.594** (.000)	.524** (.000)	.481** (.000)	.515** (.000)	.642** (.000)
Informal information Culture	.125* (.030)	.144* (.013)	.166** (.004)	.074 (.199)	.152** (.008)
Overall	.556** (.000)	.453** (.000)	.466** (.000)	.443** (.000)	.581** (.000)

* $p < 0.05$

The regression analyses are reflected in Table 4 to test the significant influence of the overall information culture as a determinant of research self-efficacy among graduate students. The linear regression utilized yielded an F-ratio of 75.615 and a probability value of $p < 0.00$ or *significant*. This means that the information culture of graduate students significantly influences their research self-efficacy. The R^2 value of 0.434 implies that 43.4 percent of the variability of the dependent variable, research self-efficacy is due to the variability of the independent variable, information culture.

Table 4

Significance of the Influence of Information Culture on the Research Self-Efficacy among Graduate Students

Independent Variable (Indicators)	Dependent Variable			
	B	β	T	*p*-value
Integrated Information Culture	0.134	0.172	3.398	0.001**
Proactive Information Culture	0.437	0.557	10.718	0.000*
Informal information Culture	-0.010	-0.011	-0.242	0.809
R	0.434			
Adjusted R^2	0.428			
F	75.615			
p-value	< 0.00			

Data analysis showed that among the domains of information culture, except that *informal information culture* and *proactive information culture* had a probability of 0.001** and 0.000*, respectively, indicating that in their singular capacities, they can significantly influence the research self-efficacy of graduate students. *Proactive information culture* was the best predictor between these two domains due to its higher beta standardized coefficients. Therefore, the null hypothesis that no domain of information culture significantly influences the research self-efficacy of graduate students is rejected.

RECOMMENDATIONS

In the findings mentioned above, the following suggestions and recommendations are offered. To sustain high-level information culture results, the administrators may encourage and support their staff, teachers, and librarians to attend conferences and training related to information culture changes and trends in higher education to be updated with the new trends, changes, and innovations. Also, to further improve the research self-efficacy of graduate students, the administrators may help strengthen their student's research capability by adding required courses to the curriculum and holding periodic works shops. It also enhances and develops research skills, especially mathematical and computer skills, for students to help achieve sound research output.

Moreover, information culture and research self-efficacy among graduate students are significantly associated. Hence, administrators can take this result to continue their quest to provide an information culture that encourages the research self-efficacy of their students. It can be strengthening information-sharing practices or developing more programs that help students formulate relevant research ideas and finish their fruition. Also, the researcher suggests that graduate students should have continuous capability training for research collaboration and publishing research output. Administrators should encourage and support their librarians, staff, and students of the Bachelor of Library and Information Science (BLIS) Program to participate in research to enable them to be more efficacy in helping students to do their research and be given a chance to present or share in an organization like Philippine Librarians Association, Inc. (PLAI). Finally, future graduate students may conduct studies similar to this paper, especially on information culture as a determinant of research self-efficacy among graduate students. It showed a significant

relationship and influence. This might supplement the outputs of this research and advance the literature dealing with the field.

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