Examining Thesis Advisers' Profile and their Undergraduate Research Mentoring Capabilities

Hazel Ann S. Soriano (EdD)
University of Southern Mindanao, Kabacan, Cotabato, Philippines
hazel.soriano@usm.edu.ph

Asia Pacific Journal of Education, Arts and Sciences
Vol. 5 No.3, 1-12
July 2018
P-ISSN 2362-8022
E-ISSN 2362-8030
www.apjeas.apjmr.com

Date Received: May 25, 2018; Date Revised: July 2, 2018

Abstract-*Undergraduate research is an avenue for students to experience the rudiments of a scientific investigation with the guidance and assistance of a thesis adviser. These thesis advisers play a significant role in the conceptualization, research conduct and even in intellectual, academic, professional and career development of undergraduate research students. This paper discusses the relationship between thesis advisers' profile and their undergraduate research mentoring capabilities. The research involved the participation of 72 thesis advisers and 622 thesis advisees. The researcher made use of adapted questionnaire with reliability index (Cronbach Alpha) of 0.842. Descriptive statistics and Pearson-r correlation was used. Results revealed thesis advisers were evaluated by their thesis advisees as skilled in terms of Intellectual Growth and Development, Research Conduct, Professional Career and Development, Academic Guidance, Skill Development and Personal Communication and highly skilled in the Research Ethics component only. Regression analysis shows that thesis advisers that are older, higher in rank, and have longer length of service have better mentoring capabilities in the seven components. Specifically, advisers' educational attainment significantly influenced advisees' professional career development; number of researches conducted highly influenced advisees' intellectual growth, research conduct and ethics. Advisers with experience in research presentation highly influenced advisees' communication skills. Finally, advisers' publication and membership in research organizations influenced mentees' personal communication and intellectual growth. Therefore, thesis advisers' profile except sex and number of year as thesis adviser were good predictors of their undergraduate research mentoring capabilities. Thus, it is of utmost importance that undergraduate research students should consider these factors to get optimum guidance and mentoring from their research advisers.*

Keywords: *thesis advisers' profile, research mentoring capability, undergraduate research, thesis advising, University of Southern Mindanao*

INTRODUCTION

Undergraduate research is any research effort undertaken by the undergraduate student that advances the knowledge of the student in an academic discipline and leads to new scholarly insights or creation of new works that add to the wealth of the discipline to new scholarly insights [1]. Undergraduate thesis manuscript writing is a requirement for students in most universities. There is no better way to prepare for work or graduate study than having an experience in undergraduate research and being mentored by a knowledgeable and capable research adviser [2]. Moreover, undergraduate research is considered to be a high-impact educational activity [3]. Undergraduate research is recognized as a distinct category of excellence [4]. It is usually taken and completed as a requirement of a degree which includes forming a project that is independent or part of a mentor's ongoing work, preparing a research proposal, planning and systematizing research methodologies, collection of data, interpretation and reporting of results [5]. It is important that college graduates possess skills and competencies needed in the workforce of the 21st century [6], [7]. Undergraduate research experience serves as an aid in the world of work by providing students with professional socialization and mentors [4], [8], [9].

However, numerous factors can be attributed to the student-researcher success in the conduct of his undergraduate research. Dela Peña, Gersana, Tolod and Absin [10] identified these factors as student-factor which include students' writing skill, motivation, research process knowledge and thesis adviser- factor which pertains to the quality of assistance provided by the research adviser to the student-researcher. The later factor is also known as research mentoring or advising. Mentoring is "dynamic, give-and-take relationship in a work environment between an experienced, expert and

more mature person (mentor) and a learner (mentee) [11]. It is also a key component of a successful college or university experience [12] good quality mentoring plays a vital role in student growth [2].

The thesis adviser is responsible for supervising the research, and directing the writing and seeing to it that the thesis meets the appropriate scholarly standard [1]. A mentor is someone who supports the mentees advance their professional career, sincerely assisting in their educational and personal success [13]. A mentor usually is an older person willing to devote time, energy, interest, and emotional support over a period of time to further the career of the mentee [14]. Mentoring involves a one-to-one relationship in which the mentor encourages and guides the student's personal growth and academic development while providing support and assistance as the student works through the challenges of undergraduate life.

The researcher has been a department research coordinator for almost a decade where she got the opportunity to sit down in proposal and manuscript defense. Different topics or research problems were heard inside the defense room. But there was always a question of "what makes the thesis acceptable?" How important is the role played by thesis advisers in the success of the students' research? What are the factors to consider in choosing a research adviser? How important are there profiles? Does the advisers' age, sex, academic rank, length of service, educational attainment, number of years as thesis adviser, number of researches conducted, presented, published and research membership influenced their research mentoring skills? Thus, the researcher explores the relationship between advisers' profile and their research mentoring capabilities to find-out the contributing factor in the success of the student research played by their respected advisers. Thesis advisers' age, rank, highest educational attainment, length of service may help advisees to grow academically and professionally because of their experiences and exposure through the years. While having advisers' who have conducted researches, participated and presented research findings orally at as well as in writing or publication may help hone their thesis advisees' research skills and can make significant contributions.

The findings of this study are beneficial first and foremost to the undergraduate research students since they will be guided whom to choose as their partner and mentor in their research endeavor that is a passport towards their graduation. Second, to the university faculty who served as thesis advisers for them to be aware of their research mentoring skills and to the large extent may give them ideas about the influence of their biographic profile and research experiences to their advisees intellectual, academic, professional growth, skill development, personal communication, research conduct and ethics. Third, to the University Research Council for them to strategize and make necessary interventions and policies with regards to the criteria in the selection of thesis advisers for the good of the studentry and the university as a whole.

Tan [16]) find out that undergraduate students who were under capable, encouraging, and helpful research advisors carry out the arduous research process and experienced various activities. Dela Peña, Gersana, Tolod and Absin [10] found five essential characteristics of effective mentor these are genuineness, expertise, trust, connection, and willingness. Indeed, effective mentoring is a critical contributing factor to success in the institution of higher education [17]. Finding the right mentor is extremely significant [18]. Mentors, advisors and supervisors all play a crucial role in career development and professional advancement. Bird [19] emphasized the influential role of advisers play in the moral development of students and trainees in the fashion in which professional tenets and moral standards are carried. However, not all thesis advisers or mentors exemplifies this characteristics of a good mentor. Thus, this study was conducted.

Research advisers are a hallmark in undergraduate research [5], [20] because it requires time, effort, and expertise [18]. Different advisers may be able to address different developmental needs of advisees in order to facilitate career progress. Therefore, thesis advisers must support their advisees connect the ethical purpose that inspires them with the things that will prepare them to engage in fruitful transformation. Moreover, just as the content of projects should be geared to individual students, the research capability of the thesis advisers has something to do with the success of their advisees. Along with the journey of advisers, they encounter different difficulties in mentoring their advisees but tied with the foundation of their skills, the advisers then create a big part in their success. Likewise, mentoring undergraduates achieves a number of benefits for faculty including: keeping them intellectually vigorous, allowing them to make contributions to their field, and enhancing the quality of their teaching. In addition, students receive many benefits, including a realistic understanding of the discipline and an opportunity to experience the first-hand thrills of success and the frustrations of failures.

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

Hence, ensuring a high quality undergraduate education has never been more important. Undergraduate students are encouraged to engage in scientific investigation because students should know how to gather and assess evidence, analyze data, interpret results, and write report [6]. The Boyer Commission [7] similarly advocated providing undergraduate research opportunities to improve desired learning outcomes as these experiences allow students to see first-hand and participate in defining and solving problems as the inquiry process unfolds [20]. When planned and managed effectively, undergraduate research endeavor becomes effective since students dedicate time and effort, work together with adviser on essential matters, get advice or comment and relate what they have learned [21].

Moreover, research as the cornerstone of modern science is used in the understanding of reputational differences among academic institutions [22] and this could help us know how things should go along, as the university moves towards a greater change. The University of Southern Mindanao is gearing toward becoming a research university and the prime mission aside from instruction is to generate research and produce graduate students. Every higher education institution is expected to have quality and relevant education, its undergraduates are taught scrupulously as their foundation towards finishing their degrees. Research, as one of the four-fold function of the university, along with instruction, extension and production requires its undergraduates to have their thesis for the enhancement of their skills and for them to apply what they had learned. The challenge in providing the best thesis advisers to produce graduates with quality students-researches may soon become the banner of the university.

Therefore, it is a must to investigate the role played by the thesis advisers' profile in the success of the research of their advisees. This study could help evaluate how skilled they are in mentoring and in giving advice to their advisees regarding their researches. Thus, there is a great need to conduct this study to find out the relationship between their profile and their research mentoring capability as thesis advisers.

OBJECTIVES OF THE STUDY

The primordial objective of the study was to determine the relationship between the thesis advisers' profile and their undergraduate research mentoring capability. Specifically, it aimed to: 1) determine the profile of the thesis advisers in terms of age, sex, rank, length of service, highest educational attainment, number of years as thesis adviser, number of research conducted, number of research presented, number of research published, membership in research organization; 2) evaluate the research mentoring capability of thesis advisers as perceived by their thesis advisees in the following components: Intellectual Growth, Conducting Research, Professional Career Development, Academic Guidance, Skill Development, Personal Communication and Research Ethics; and 3) determine if there is a significant relationship between the thesis advisers' profile and their research mentoring capability in undergraduate research.

Theoretical Framework

Levinson et al. [23] Traditional Mentoring Theory described the mentor's function as a guide, counselor, and sponsor. Ragins and Scandura [24] referred to mentors as "influential individuals with advanced experience and knowledge who are committed to providing upward mobility and support to their apprentices' careers". Bird [19], stressed that mentors, advisors, and supervisors fulfill a key function in professional development. Mentors are critically important to career development and professional success.

Moreover, Lev Vygotsky's [25] Theory Instructional Scaffolding states that social interaction plays a very important role in cognitive development; is a learning process designed to promote a deeper level of learning by providing appropriate assistance by the teacher/mentor/adviser to assist the learner to accomplish the task. Scaffolding is the support given during the learning process which is tailored to the needs of the student with the intention of helping the student achieve his/her learning goals [26]. Instructional scaffolding is the provision of sufficient support to promote learning when concepts and skills are being first introduced to students.

The study anchors on the National Academies Press Comments on Faculty Mentoring by Stine [27] wherein the framework include six components: Intellectual Growth and Development, Research, Professional Career Development, Academic Guidance, Skill Development, and Personal Communication. Since the focus of the study is the adviser's research mentoring skills the seventh component was added which is Research Ethics.

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

Table 1. Total number of respondents by college. USM, SY 2015-2016.

	CAS	CBDEM	CED	CENCOM	CHEFS	TOTAL
Number of Thesis Advisees	100	109	213	100	100	622
Number of Thesis Advisers	30	10	7	12	13	72

METHOD

The study used descriptive-correlation research design to determine the profile of the respondents and its significant relationship to their advising research capability. The study was conducted in University of Southern Mindanao, Kabacan, Cotabato, Philippines. The respondents of the study were the graduating students of school year 2015-2016 and their respective thesis advisers.

The study employed two-stage sampling. First, out of 10 colleges the researcher used simple random sampling to pick the five colleges to represent the study which came out to be the big colleges namely: the College of Arts and Sciences (CAS), College of Business Development Economics and Management (CBDEM), College of Education (CED), College of Engineering and Computing (CENCOM), and the College of Human Ecology and Food Sciences (CHEFS). Second, from each college drawn the researcher randomly selected thesis advisees who have given their consent to be part of the study and their corresponding thesis advisers.

The researcher made use of modified survey questionnaire. The first set of the questionnaire is for the advisees with two parts; the first part was on thesis advisees' profile and the second part was on their evaluation of their thesis advisers' research mentoring capability adapted from National Academies Press Comments on Faculty Mentoring Survey by Deborah D. Stine [27] composed of 33- item statements with reliability index (Cronbach Alpha) of 0.842 *(high reliability).* The second set was a self-made questionnaire for thesis advisers' profile.

Before the mass distribution of the questionnaires to different colleges, the instrument used was first piloted to 30 students for validity testing to find out its reliability index. After the administration of the questionnaires to the advisees, it was retrieved and determined their respective advisers. Then, the researcher went to the thesis advisers identified in the advisees' questionnaires to gather their profile. After the retrieval of all the questionnaires, the results were tallied, tabulated and interpreted according to the objectives of the study.

Furthermore, the data collected was taken with utmost confidentiality. General safeguards of the research advisee and adviser respondents were taken into consideration by informing them of the nature and purpose of the study. An informed consent was made available as attached to the survey questionnaire wherein participants were asked of their voluntary participation of the study. In order to ensure that the study was conducted in an ethical manner, the study proposal was presented and reviewed by the University Research and Extension Council. Permission from appropriate authorities was sought to ensure that it followed the prescribed protocols. In administering the survey questionnaires, the researcher ensured that a full disclosure of the nature of the research was explained thoroughly and properly. The same with the purpose and benefits of the study as well as the confidentiality of their response. Moreover, the questionnaire that was used in the study does not contain any degrading or unacceptable statement that could be offensive to the respondents. Likewise, it was designed purely to collect information related to the study and no private questions were asked. Coding was applied to protect the identity of the respondents. Respondents were assured that their responses were kept confidential and that their names will not appear in any part of the paper.

Descriptive statistics such as frequency, percentage, and mean were used to describe the respondents' profile and their research mentoring capability. Regression analysis using Pearson-r was done to determine the significant relationship between thesis advisers' profile and their research mentoring capability.

RESULTS AND DISCUSSION

Thesis Advisers' Profile

Age. Results show that out of 72 thesis adviser-respondents, 28 (38.9%) were in the age bracket of 30-39. This implies that the highest number of thesis advisers are in their middle adulthood stage which is considered the peak of their productive years. It is a stage where one discovers their passion, work hard for it and swore to make it. A mentor usually is an older person willing to devote time, energy, interest, and emotional support over a period of time to further the career of the mentee [14]. The data reveals that as the age bracket increases, the number of thesis advisers who belonged to each bracket decreases. This means

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

that when the instructors/professors get older, the lesser advisees that they have. This is due to the fact that most of the professors are already higher authorities in the university that is often holding an administrative position.

Sex. Majority of the thesis advisers were females (44 or 61.1%) compared to males (28 or 38.9%). This shows that there are more female teachers compared to male counterparts. It is wise to say that there were more female thesis advisers compared to male because there were more female teachers in the said profession. Teaching is a profession that entails a lot of facilitation, compassion and care, parenting job particularly motherly advice which makes the teaching profession-a women dominated field.

Rank. More than half 37 or 51.39% were Instructors, which means that the highest number of thesis advisers still held the lowest academic rank. It also reveals that those who were under Contract of Service (COS) Instructor I (7or 9.7%) were engaged in research mentoring. Moreover, there were 20 (27.78%) were Assistant Professors, and 6 or 8.33% were Associate Professors and only 2 or 2.78% were Full Fledged Professors. It can be noted that quite a few are advising from Associate and Professorial level where they are the ones who are expected to do more mentoring. Gaff and Lambert [28] and Serow, R. C. [29] stated that making sure participation in undergraduate research is part of promotion and tenure would encourage faculty along all spectrum of faculty rank to participate in undergraduate research.

Length of Service. Majority 40 (55.6%) of the respondents had below 10 years of service, 20 (27.8%) had 10-19 years of service, and 6 (8.3%) each had 20-29 and 30-39 years of service. This reveals that majority of the thesis advisers are less than a decade in the thesis advising. This correlates with the result with the age which is in their young adulthood. In the university, the instructors are encouraged to engage in other functions such as research and extension services. This is the time where the young professionals gain experience that will lead them to promotion and competence as college instructors as part of their other functions.

Highest Educational Attainment. The majority (42 or 58.3%) of the thesis advisers were MA/MS graduates followed by PhD/EdD holders (14 or 19.4%) and with MA/MS units (10 or 13.89%). This reveals that majority of the thesis advisers met the requirement as research adviser stipulated in the University Research Manual. The university encourage those who have their masters to engage in thesis advising since they have the experience in doing master's thesis. This experience will give them more competence and confidence in guiding the student in conceptualizing and designing the research.

Number of Years as Thesis Adviser. The majority (42 or 58.3%) had 1-5 years in thesis advising followed by 6 to 10 years (19 or 26.39%). This shows that majority of the advisers are still a decade old in research advising which jibes with their length of service. This reveals that majority of them are still neophytes or novices in research mentoring which implies that these thesis advisers still need to build their competence and credibility. The advisers are expected to teach and impart the needed knowledge and skill which can help or assist the student-researcher in the conduct and writing of the scientific paper according to Dela Peňa, Gersana, Tolod, and Absin, [10].

Number of Researches Conducted. Moreover, the majority (48 or 66.7%) of the thesis advisers conducted 1-10 researches, which means that thesis advisers have at least one research experience before they ventured in research mentoring. This means that advisers have the basic knowledge and skill that they need to carry-out their duties. This finding confirmed that most faculty members in a university are anticipated to engage in research endeavors, instruction, and extension [30]. However, 13 or 18% had no research conducted which implies that some thesis advisers do not have ongoing researches and were not yet exposed to one of the four-fold functions of the university which is research.

Number of Research Presented. It was found out that majority (42 or 58.3%) of the thesis adviser-respondents had 1-10 researches presented. While only two (2 or 2.8%) had about 11-20 research presentation and the rest do not have since they don't have also research. This implies that thesis advisers have the fundamental know-how on how to deliver and share research findings in seminars and conferences. Which the thesis advisees usually faced anxieties and uncertainties about thesis defense, preparation of report and presentation, and how to answer questions from the panel or examining committee.

Number of Research Publication. Results show that majority (44 or 61.1%) of the respondents had no research publication. This implies that they have not yet exercised their full potential in the field of research such as dissemination of research findings in a journal. On the other hand, there were 15 or (20.8%) who had research publications. Research publication is usually the problem in most schools since it takes a lot of writing skill, patience and perseverance in looking for

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

appropriate and scholarly journals. Most reputable and scholarly international journals have very tedious screening, review and evaluation process with the shortest of two months to one or two years. This means that the university should offer more trainings on research publications. Those who were able to publish quality paper adore the stature of university dominance and academic maturity [31]. For international community of academic institutions, the prestige of a university is built on the published research output of its faculty [32].

Membership in Research Organization. The majority (45 or 62.5%) of the thesis advisers were not yet a member of any research organizations. This reveals that most of them need to seek research memberships to be updated with the latest trends and directions in research. Attendance in research membership conferences builds networking and linkages wherein it can strengthen professional networks by brushing elbows with other researchers and funding agencies. It can also help advisers to know the latest findings and innovations shared and discussed during forum and conferences which in turn can be used to explore more research themes and areas.

Research Mentoring Capability of Thesis Advisers

Intellectual Growth and Development. Research advisees believed that their advisers were "*highly skilled"* in helping them to be critical and objective thinker concerning their results and ideas and encouraging them to be imaginative. On the other hand, they were *"skilled"* in terms of encouraging students' inventiveness and in developing students' logical reasoning. The area mean is 3.49 with a description of *"skilled"* implies that thesis advisers had the necessary skills in developing intellectual skills such as creativity, logical reasoning, and inventiveness among his/her thesis advisees. Bauer and Bennett [33] stated that thesis advisers exhibit intellectual growth and development, interpersonal communication and linguistic abilities, in technical, calculations, and logical-intellectual skills. These characteristics are influential to the thesis advisees that they tend to absorb and emulate.

Research Conduct. Results revealed that the thesis adviser-respondents were *"highly skilled"* in providing thoughtful advice regarding their researches and in showing how to do original research while still *"skilled"* in improving the ability of their advisee to conceive explanatory hypotheses, improving observation of phenomena and in providing constructive feedback regarding their research. The area mean of 3.46 with a description of *"skilled*" implies that thesis advisers possess the required skills in conducting research. This is consistent with the findings of Abon et al. [34] that 92.95% of faculty in the Philippines had undertaken research and development activities for more than 20 years. This means that tertiary faculty has knowledge in conducting and mentoring research activities.

Professional Career Development. The thesis adviser-respondents were *"skilled"* in developing the professional career of his/her advisees with an area mean of 3.37. This means that they have necessary competencies in providing counsel, providing guidance, envisioning a career plan, providing guidance on finding a job and on a full range of career options and being an instrument in building the professional networks of their advisees. Mentors, advisors, and supervisors who teach responsible research conduct, play a fundamental role in professional development [19]. Moreover, participating in undergraduate research is also positively linked to career planning and the pursuit of advanced education. Students who take part in undergraduate research also have stronger and distinct career goals [33]. Thus, thesis advisers need to enhance these skills in order to give better mentoring and advising in terms of career planning and building career networks.

Academic Guidance. This area got the lowest mean of 3.35 equivalent to "skilled" in providing sound advice in career planning and in providing advice relative to career goals and in discussing the pitfalls in the academic growth of their advisees. This result implies that thesis advisers need to improve their skills in providing and giving advice relative to curriculum and planning courses. Chanock [25] opined that giving direction to academic skills is an indication of academic guidance that advisers may take, most of the contributions relate to discipline-specific workshop programs. Undergraduate Advising and Research introduces students to the full potential of academic and scholarly work of undergraduate study, supports students in their academic and intellectual pursuits, and inculcates within them a sense of personality [36].

Skill Development. Adviser-respondents were *"highly skilled"* in developing research advisees planning and organization, communication, teaching and team leadership skills. However, they were *"skilled"* in providing constructive feedbacks on presentation and their writing skills. This implies that

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

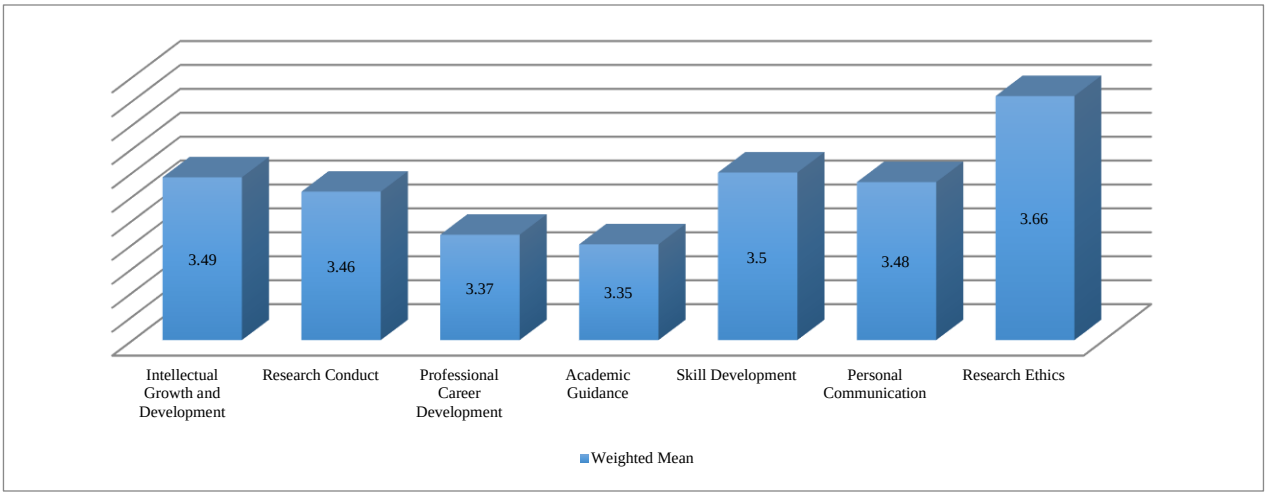

Figure 2. Research mentoring capability of research advisers. USM, SY 2015-2016
Legend: *Mean: 1.00-1.50: Unskilled (US); 1.51-2.50: Slightly Unskilled (SU); 2.51- 3.50: Skilled (S); 3.51- 4.00 Highly Skilled (HS)*

they need to enhance their capacity to provide constructive feedback on the research proposals and manuscript of their advisees. According to Wanberg, Welsch and Hezlett [37], effective approaches to skill development are sequential, active, focused and explicit. The strength of the performance of a thesis adviser is evident in the outputs of his or her advisee in both oral and written skills.

Personal Communication. The thesis adviser-respondents were *"highly skilled"* in listening to their concerns, keeping in touch with their progress and taking a respectful attitude toward the interest of their advisee. On the other hand, they were *"skilled"* in taking into account gender, ethnic and cultural issues, not abusing power and in providing feedback in a timely fashion. This area mean of 3.48 with a description of *"skilled*" means that thesis advisers consider the multiculturalism and diversity of student advisees and in providing feedback. Several studies revealed that taking part in undergraduate research enhances investigation abilities [38]. Moreover, Seymour, Hunter, Laursen, & Deantoni [39] posited that undergraduate research may enhance self-confidence and self-regard since students take part in scientific investigation, collaborations and finally presentation of their research output with the guidance of their mentor.

Research Ethics. This area got the highest mean of 3.66 *"highly skilled"* which means that these advisers required their advisees to seek permission before the conduct of the study, encouraged them to do original work and find first-hand data, as well as remind them to acknowledge literature sources. Mentoring raises a number of ethical issues. Moreover, because mentoring and advising is a personal as well as a professional relationship, and a relationship in which the authority may not be distributed, can cause issues related to rights, labeling and tracking, and the abuse of command [19]. Although mentoring alone may not be enough, it is important in promoting an encouraging outlook and appreciating the importance of conducting research.

Relationship between the thesis advisers' profile and Their undergraduate research mentoring capability

Table 3 revealed that advisers' age had a highly significant correlation with the research mentoring capability in terms of Intellectual Growth and Development (r=0.322, p=0.006), Conducting Research (r=0.32, p=0.006), Professional Career Development (r=0.35, p=0.003), Academic Guidance (r=0.329, p=0.005), and Skill Development (r=0.323, p=0.006). Relationship was significant with Personal Communication (r=0.273, p=0.02) and Research Ethics (r=0.297, p=0.011). The positive coefficient on each scale implies that advisers who were older had higher research advising capability skills in terms of Intellectual Growth and Development, Conducting Research, Professional Career Development, Academic Guidance, Skill Development, Personal Communication, and Research Ethics. This implies that as a thesis adviser gains age, the more knowledgeable he or she becomes. This means that if the thesis advisers are older, they can give their advisees the mentoring and advising that they need in terms of enhancing their positive outlook toward research. It is

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

often heard that 'gray hair equals wisdom'. As one becomes older, the more experiences he has gained. This experiences will become an instrument in providing sound advice in planning and conceptualizing the research topics and methods. The more mature adviser can discuss academic goals relative to one's career plan and provide cautions for possible pitfalls in the study and schooling in general. Moreover, older people tend to have developed their patience and understanding because of what they went through thereby providing feedback in a timely fashion. Therefore, they are perceived to listen more to advisees' concern, takes respectful attitude towards their students' interests and needs. Finally, data revealed that older mentors can provide constructive feedback on mentees writing and presentation skills. This was also supported by Rhodes [40] who stated that a mentor is an older, more experienced adult who provides direction, training, and inspiration aimed at developing the capability and personality of the trainee.

However, being female or male does not significantly correlate with any of the research mentoring capability of the advisers which means that being male does not necessarily mean that they are better compared to female counterparts in mentoring and advising their advisee and vice versa. This negates the study of Levinson et al., [23] who state that gender does seem to play a substantial role in predicting faculty involvement in undergraduate research. Women mentors report more publications and more time allocated to research.

Table 3. Relationship between the thesis advisers' profile and their research mentoring capability. USM, 2016.

Profile	n=72	Intellectual Growth and Dev't	Conducting Research	Prof'l Career Dev't	Academic Guidance	Skill Dev't	Personal Communication	Research Ethics
Age	Pearson r	**0.322****	**0.32****	**0.35****	**0.329****	**0.323****	0.273*	0.297*
	p-value	0.006	0.006	0.003	0.005	0.006	0.02	0.011
Sex (female)	Pearson r	-0.115 ns	-0.136 ns	-0.01 ns	0.047 ns	-0.106 ns	-0.174 ns	-0.168 ns
	p-value	0.335	0.253	0.935	0.693	0.374	0.143	0.159
Rank	Pearson r	**0.344****	**0.334****	**0.362****	**0.322****	**0.322****	0.266*	0.297*
	p-value	0.003	0.004	0.002	0.006	0.006	0.024	0.011
Length of Service	Pearson r	0.259*	0.262*	**0.312****	**0.303****	0.278*	0.226 ns	0.243*
	p-value	0.029	0.027	0.008	0.01	0.019	0.058	0.041
Highest Educ'l Attainment	Pearson r	0.201 ns	0.213 ns	**0.253***	0.156 ns	0.2 ns	0.158 ns	0.17 ns
	p-value	0.091	0.073	0.032	0.19	0.092	0.185	0.153
No. of Years as Thesis Adviser	Pearson r	0.054 ns	0.044 ns	0.077 ns	0.127 ns	0.063 ns	0.037 ns	0.045 ns
	p-value	0.655	0.713	0.518	0.287	0.6	0.757	0.706
No. of Research Conducted	Pearson r	**-0.315****	**-0.323****	-0.177 ns	-0.025 ns	**-0.245***	**-0.293***	**-0.31****
	p-value	0.007	0.006	0.138	0.833	0.038	0.012	0.008
No. of Research Presented	Pearson r	-0.194 ns	**-0.252***	-0.177 ns	-0.105 ns	**-0.263***	**-0.312****	**-0.292***
	p-value	0.103	0.033	0.138	0.379	0.025	0.008	0.013
No. of Research Published	Pearson r	-0.084 ns	-0.151 ns	-0.068 ns	-0.001 ns	-0.169 ns	**-0.237***	-0.204 ns
	p-value	0.482	0.205	0.57	0.991	0.156	0.045	0.086
Membership Research Org	Pearson r	**-0.286***	-0.154 ns	-0.119 ns	-0.11 ns	-0.028 ns	0.044 ns	-0.049 ns
	p-value	0.015	0.195	0.319	0.356	0.816	0.714	0.681

ns-not significant at 5% level
***-highly significant at 1% level*
**-significant at 5% level*

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

Moreover, rank had a highly significant correlation with the research mentoring capability of the advisers in terms of Intellectual Growth and Development (r=0.344, p=0.03), Conducting Research (r=0.334, p=0.004), Professional Career Development (r=0.362, p=0.002), Academic Guidance (r=0.362, p=0.006) and Skill Development (r=0.362, p=0.006); and a significant correlation with Personal Communication (r=0.266, p=0.024) and Research Ethics (r=0.297, p=0.011). The positive coefficient on each scale implies that advisers who had higher rank can effectively mentor the advisees in identification of new research topics, developing logical reasoning, doing research in a scientific manner, envisioning a career plan and building professional networks, providing sound advice relative to career plans, developing planning and leadership skills, critiquing work and even in listening to their concern. It is dire to recognize that mentoring an undergraduate research project involves a substantial commitment from faculty. Since effectively supervising an undergraduate research experience will likely take significant time and effort, it is imperative to advocate that undergraduate research advising be considered in promotion and tenure processes and to compensate faculty for this work [3]. Research capability of the faculty was affected by their academic rank [41].

Moreover, length of service was significantly correlated to the research advising capability skills of the advisers in terms of Intellectual Growth and Development (r=0.259, p= 0.029), Conducting Research (r= 0.262, p=0.027), Skill Development (r=0.278, p=0.019) and Research Ethics (r=0.243 p=0.041). Relationship was highly significant with Professional Career Development (r=0.312, p=0.008) and Academic Guidance (r=0.303, p=0.01). This indicates that advisers who have longer length of service had more experiences, training for a career in scientific research provide a useful illustrative context. Mentors are willing and able to share their experience and expertise. Advisers influenced intellectual growth by encouraging imagination, creativity and inventiveness including identification of new research topics and new techniques. They can help their advisees develop logical reasoning, critical and objective judgment. In terms of research conduct, the adviser can take step to improve the advisees' ability to conceive hypothesis and provide constructive feedback on methods to be used. This further implies that advisers who have served the university for a longer time can provide counsel for important professional decisions. He/she is also an instrument in building professional networks and promoting collegial relationships with professional community because of his linkages and associations. Moreover, an experienced adviser can provide guidance in envisioning career plan and finding a job through career options or referrals. They reflect on their successes and failures and can explain what they have learned (Bird, [19]). Undergoing undergraduate research influenced career planning and graduate studies. They have also clearer career goals [33] and are more determined to pursue scientific endeavors than their peers who do not have such an experience [39].

Furthermore, highest educational attainment was significantly correlated with the research advising capability skills of the thesis advisers only in terms of Professional Career Development (r= 0.253, p= 0.032). This implies that educational background is needed for job mastery skills and those skills are necessary to successfully perform one's job. Mentors play a key function in career development and professional success [19], [30]; and that research capability of the faculty was affected by their highest educational attainment and teaching load [41]. Mentors can offer information that is definite to the field, play a crucial role in learning how to write and process manuscripts, how to acquire subsidy, and knowing which agencies to consider for partnership [42].

The number of years as thesis adviser did not significantly correlate with any of the research components. This implies that advising for a long time but not active in research conduct and related training is not a guarantee that one will become an effective mentor. Therefore, student researcher should see to it that when looking for adviser it is just right to consider other factors such as age, rank, length of service and highest educational attainment.

Number of researches conducted had a highly significant correlation with the research mentoring capability of the advisers in terms of Intellectual Growth (r=-0.315, p=0.007), Conducting Research (r=-323, p=0.006), and Research Ethics (r=-0.31, p=0.008), and a significant correlation with Skill Development (r=-0.245, p=0.00.038) and Personal Communication (r=-0.293, p=0.012). The positive coefficient on each scale implies that advisers who are researchers themselves had higher research mentoring skills.

Number of researches presented had a highly significant correlation with the mentoring capability of

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

the advisers in terms of Personal Communication (r=-0.312, p=0.008) and a significant correlation with Conducting Research (r=-0.252, p=0.033), Skill Development (r=-0.263, p=0.025) and Research Ethics (r=-0.292, p=0.013). This implies that an adviser who had more research presentation had better research mentoring skills particularly, in communication aspect.

The number of researches published was significantly correlated with Personal Communication (r=-0.237, p=0.045). This reveals that advisers who had publications had developed mentoring skills in terms of Personal Communication since publication is a form of communication of research findings. Moreover, publishing takes a lot of patience and excellent writing skills to pass the review and evaluation set by scholarly journals.

Moreover, membership in research organizations was significantly correlated with Intellectual Growth and Development (r=-0286, p=0.015). This implies that research membership and attendance in conferences and training add knowledge that eventually helps one to become a logical, imaginative and divergent thinker. Since exposure in research conferences widens one's perspective due to new discoveries, trends, and issues and concerns that are being shared and discussed.

CONCLUSION

An undergraduate thesis is a finale of a college life and a requirement for graduation wherein a thesis adviser plays a significant role in the success of the student advisee. Hence, effective research mentoring plays a key role in the academic guidance, intellectual growth, professional career development, skill development, personal communication and research conduct and ethics of the student-researcher.

Results revealed that greater number of thesis advisers are in the age bracket of 30-39 or in their middle adulthood, female, in the lowest academic rank or Instructor I, below 10 years in teaching, master's degree holder, and had been a research adviser for not more than 5 years, with at least one research conducted and presented but most had no publication yet. Thesis advisers came out to be *highly skilled* in research mentoring in terms of Research Ethics component and are *skilled* in developing thesis advisees' intellectual growth, research conduct, professional career, academic guidance, skill development, and personal communication. Thus, there is much room for improvement on the thesis advisers' research mentoring capabilities.

Moreover, results of correlation signifies that undergraduate thesis adviser's age, rank and length of service highly influenced the advisees' imagination and creativity (intellectual growth), ability to conceive original research (research conduct), building professional network (professional career development), providing sound advice relative to academic goals (academic guidance), and in developing planning, writing, and leadership skills (skill development). This implies that if the thesis adviser is older, higher in rank and longer in the service, he/she becomes wiser and knowledgeable about the customs and traditions of the university research endeavor and thereby exhibits the expertise and credibility in thesis advising. Further, the highest educational attainment of the adviser significantly influenced the advisees' career plan and professional decisions (professional development). This connotes that the higher the academic qualification of the adviser, the better mentoring in terms of career planning and professional ethics. In addition, the advisers' research experiences as study leader and as paper presenter influenced the research advisees' intellectual growth, research conduct, skill development, personal communication, and ethics in research. This indicates that if the adviser is an active and experienced researcher, he has a significant beneficial effect on his advisees' research endeavor because the role of a thesis adviser is not mainly to direct but to enhance the skills and capacitate the student researcher. Lastly, advisers' research publication and membership significantly influenced the advisees' ability to communicate, and interpret results (personal communication) since research publication is a form of communication of research findings and help develop advisees to be an imaginative, creative and objective thinker (intellectual growth). Thus, the results support the premise in Traditional Mentoring Theory of Levinson [23] which described that mentor's function as a guide, counselor, and sponsor; and considered "influential individuals with advanced experience and knowledge who are committed to providing upward mobility and support to their apprentices' careers" [24].

Therefore, the older, the higher the rank, the higher the educational attainment, the more experienced the adviser in research conduct, presentation, and publication, and is affiliated in research organizations, the better and more competent he/she becomes in thesis advising and mentoring. Hence, the university through the Office of the Research and Extension should consider these factors in the selection/criteria of

P-ISSN 2362-8022 | E-ISSN 2362-8030 | www.apjeas.apjmr.com

choosing thesis advisers knowing that not every thesis adviser possesses these characteristics of an effective mentor.

Limitations of the Study

The study was limited to the undergraduate research students graduating batch of school year 2015-2016. Further, the study focused only on the thesis advisers' profile, their research mentoring capabilities as perceived by their thesis advisees and the relationship of the first to the later. The study does not looked into the quality of the undergraduate thesis of the students which could be directions of future studies.

RECOMMENDATION

Based on the findings of the study, the researcher hereby recommends the following: 1) undergraduate thesis students shall choose thesis advisers preferably those who are mature in age, higher in rank, longer in service, has high educational attainment, conducted, presented and published researches and have memberships in research organizations; 2) thesis advisers must seek to improve their rank, pursue a doctoral degree, engage in research and seek more membership in research organizations since these are the areas that point out higher mentoring capability; 3) the University through the Office of the Vice President for Research, Development and Extension (VPRDE) shall revisit the guidelines/criteria for the selection of research advisers. That aside from being a Master's degree holder, he/she should have at least conducted and completed research and attended seminars and trainings in research-related activities; 4) the University Research and Extension Council (UREC) shall conduct seminar-workshops or retooling and give more attractive benefits for faculty/thesis advisers to engage in research, present and publish research outputs to ensure quality outcomes for research. This in turn can help the university during accreditation conducted by Accreditation Agency of Chartered Colleges of Universities and Colleges in the Philippines (AACCUP) and International Organization for Standardization (ISO) wherein Research is one of the areas that is being looked-into for academic programs, for SUC leveling, for normative funding, in evaluating quality of scientific training, for granting awards as Center for Development and Center of Excellence.

Acknowledgment

Sincere thanks is extended to the University of Southern Mindanao for funding this study. The same is extended to the respondents of the study -the graduating batch of SY 2015-2016 and their thesis advisers.

REFERENCES

[1] USM Undergraduate Handbook. 2010. Research and Development Office, University of Southern Mindanao, Kabacan, Cotabato.

[2] Taylor, J. M., & Neimeyer, G. J. (June, 2009). Graduate school mentoring in clinical, counseling, and experimental academic training programs: an exploratory study. *Counselling Psychology Quarterly*, 22(2), 257-266.

[3] Buckley, J. A. (2010). Undergraduate research experiences: What students expect, what they do, and how they benefit (Doctoral dissertation, [Bloomington, Ind.]: Indiana University).

[4] Eigren, T., & Hensel, N. (2006). Undergraduate research experiences: Synergiesbetween scholarship and teachin g. AAC&U Peer Review, 8(1), 47.

[5] Hu, S., Scheuch, K., Schwartz, R., Gayles, J. G., & Li, S. (2008). Reinventing Undergraduate Education: Engaging College Students in Research and Creative Activities. ASHE Higher Education Report, Volume 33, Number 4. ASHE Higher Education Report, 33(4), 1-103.

[6] Association of American Colleges and Universities (AAC&U). (2007a). College learning for the new global century: A report from the national leadership council for liberal education and America's promise. Washington, DC: Author.

[7] Boyer Commission (1998). Reinventing undergraduate education: a blueprint for America's research universities Available from http://naples.cc.sunysb.edu/Pres/boyer.nsf/

[8] Hunter, A. B., Laursen, S. L., & Seymour, E. (2006). Benefits of participating in undergraduate research in science: A comparative analysis of student and faculty perceptions. practice, 1(8), 1.

[9] Kuh, G. D., Chen, P. D., Nelson Laird, T. F., & Gonyea, R. M. (2007). Teacher scholars and student engagement: Some insights from FSSE and NSSE. In American Council of Learned Societies (ACLS), Student learning and faculty research: Connecting teaching and scholarship. A Teagle Foundation White Paper from the Teagle Working Group on the Teacher-Scholar. New York: American Council of Learned Societies.

[10] Dela Peña III, S. C. , Gersana, Z., Tolod, L., & Absin, S. (2012). Quality of thesis advising in graduate education in Northern Mindanao. *Liceo Journal of Higher Education Research*, *8*(1), 1-1.

[11] Healy, C. C., & Welchert, A. J. (1990). Mentoring relations: A definition to advance research and practice. *Educational researcher*, *19*(9), 17-21.Welchert

[12] Fedynich, L., & Bain, S. F. (2011). Mentoring the successful graduate student of tomorrow. *Research in Higher Education Journal*, *12*, 1.

[13] Steiner, J. F., Curtis, P., Lanphear, B. P., Vu, K. O., & Main, D. S. (2004). Assessing the role of influential mentors in the research development of primary care fellows. Academic Medicine, 79(9), 865-872.

[14] Pfund, C., Pribbenow, C. M., Branchaw, J., Lauffer, S. M., & Handelsman, J. (2006). The merits of training mentors. Science-New York Then Washington-, 311(5760), 473.

[15] Malachowski, M. (1996) The Mentoring Role in Undergraduate Research Projects Council on Undergraduate Research, University of San Diego.

[16] Tan, E. B., 2007. Research Experiences of Undergraduate Students at a Comprehensive University. International Journal of Teaching and Learning in Higher Education, 19 (3), 205-215.

[17] Meagher, E., Taylor, L., Probsfield, J., & Fleming, M. (2011). Evaluating research mentors working in the area of clinical translational science: a review of the literature. Clinical and translational science, 4(5), 353-358.

[18] Lee, J. M., Anzai, Y., & Langlotz, C. P. (2006). Mentoring the mentors: aligning mentor and mentee expectations. *Academic Radiology*, *13*(5), 556-561.

[19] Bird, S.J. (2001). Mentors, advisors and supervisors: Their role in teaching responsible research conduct. Science and Engineering ethics, 7, 455-468.

[20] Kinkead, J. (2003). Learning through inquiry: An overview of undergraduate research. New Directions for Teaching and Learning, 93, 5-17.

[21] Kuh, G.D. (2008).High-impact educational practices: What they are, who has access to them, and why they matter. Washington, DC: Association of American Colleges and Universities.

[22] García, C.E. and L. Sanz-Menéndez (2004) "The competition for funding as an indicator of research competitiveness: The Spanish R&D government funding". Working paper CSIC-UPC 04-15.

[23] Levinson, D. J., Darrow, D., Klein, E., Levinson, M., & McKee, B. (1978). Seasons of a man's life. New York: Knopf

[24] Ragins, B. R., & Scandura, T. A. (1999). Burden or blessing? Expected costs and benefits of being a mentor. Journal of Organizational Behavior, 493-509.

[25] Vygotsky, L. (1987). Zone of proximal development. *Mind in society: The development of higher psychological processes*, *5291*, 157.

[26] Sawyer, K. R. (2006). The new science of learning. In K. R. Sawyer (Ed.), The Cambridge handbook of the learning sciences (pp. 1 – 16). New York: Cambridge University Press.

[27] Stine, Deborah D. 1997. Comments on Faculty Mentoring Survey, The National Academies Press http://www.nap.edu/catalog.php?record_id=5789

[28] Gaff, J. G., & Lambert, L. M. (1996). Socializing future faculty to the values of undergraduate education. Change: The Magazine of Higher Learning, 28(4), 38-45.

[29] Serow, R. C. (2000). Research and teaching at a research university. Higher Education, 40(4), 449-463.

[30] Fairweather, J.S. (2002). The mythologies of faculty productivity: Implications for institutional policy and decision-making. Journal of Higher Education, 73(1), 26-48.

[31] CHED Region I. 2002. *A Handbook in Thesis/Dissertation Writing and Advising.* Dagupan City: SLA Publishing House.

[32] Simbulan, R. G., 2005. Higher Education Research in the Era of Globalization: Dilemmas and Challenges of Alternative Research. Philippine Education in the Third Millennium: Trends, Issues and Challenges Concerns. 206-217. 6Ns Enterprises.

[33] Bauer, K. W., & Bennett, J. S. (2003). Alumni perceptions used to assess undergraduate research experience. The Journal of Higher Education, 74(2), 210-230.

[34] Abon, Marilou, et al. 2003. Research Capability of HEIs in the Philippines and State of R and D in Region III," http://serpp.pids.gov.ph/details.php3?tid=3969

[35] Chanock, K. (2002) Academic Skills Advising: Evaluating for Program Improvement and Accountability. National Library of Australia, Cataloguing-in-Publication data.

[36] Stanford University. 2014. http://undergrad.stanford.edu

[37] Wanberg, C. R., Welsh, E. T., & Hezlett, S. A. (2003). Mentoring research: A review and dynamic process model. In *Research in personnel and human resources management* (pp. 39-124). Emerald Group Publishing Limited.

[38] Alexander, B. B., Foertsch, J., Daffinrud, S., & Tapia, R. (2000). The Spend a Summer with a Scientist (SaS) Program at Rice University: A Study of Program Outcomes and Essential Elements, 1991-1997. *CUR Quarterly*, *20*(3), 127-133.

[39] Seymour, E., Hunter, A. B., Laursen, S. L., & Deantoni, T. (2004). Establishing the benefits of research experiences for undergraduates in the sciences: First findings from a three-year study. *Science Education*, *88*(4), 493-534.

[40] Rhodes, J. E. (2005). A model of youth mentoring. *Handbook of youth mentoring*, 30-43.

[41] Salom, Melchor M. (2013) Research Capability of the Faculty Members of DMMMSU Mid La Union Campus. International Scientific Research Journal, Volume – V, Issue – 2, 2013, ISSN 2094 – 1749

[42] Webber, K. L., Laird, T. F. N., & BrckaLorenz, A. M. (2013). Student and faculty member engagement in undergraduate research. *Research in Higher Education*, *54*(2), 227-249.