

## **Learning of Research at Doctoral Level: Perceptions of International Doctoral Students at a South-Central Texas Private University**

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### **Abstract**

The number of international doctoral students in American universities continues to grow, and very little is known about their learning of research. This study explored international doctoral students' views and perceptions in learning of research at a private faith-based South-Central Texas university in the United States. The literature on the subject is limited and this study aimed at covering the gap that exists in this domain. Through this basic interpretative qualitative study, findings revealed that international doctoral students value taking courses, collaborating with others, working individually, and using available resources at the university in their learning of research. Understanding of international students and the issues they face, may help in their retention, success and understanding of their learning of research. It is recommended that the universities in the United States support international students so that these underrepresented population succeed in their studies.

**Keywords:** international doctoral students, United States, learning of research, basic interpretative qualitative research design, mentoring, doctoral courses

## Introduction

The United States is the top destination of choice for international students in higher education (Witherell & Clayton, 2014). The number of international students enrolled in U.S. higher education was 1,043,839 in 2015/16 with a reported increase of 7% from the prior year and contributed \$35.8 Billion to the US economy (IIE 2017), as reflected in Figure 1. This has resulted in American higher education becoming increasingly diverse with the number of students from other countries enrolling in colleges and universities across the United States (Mukminin & McMahon, 2013).

## International Student Enrollment

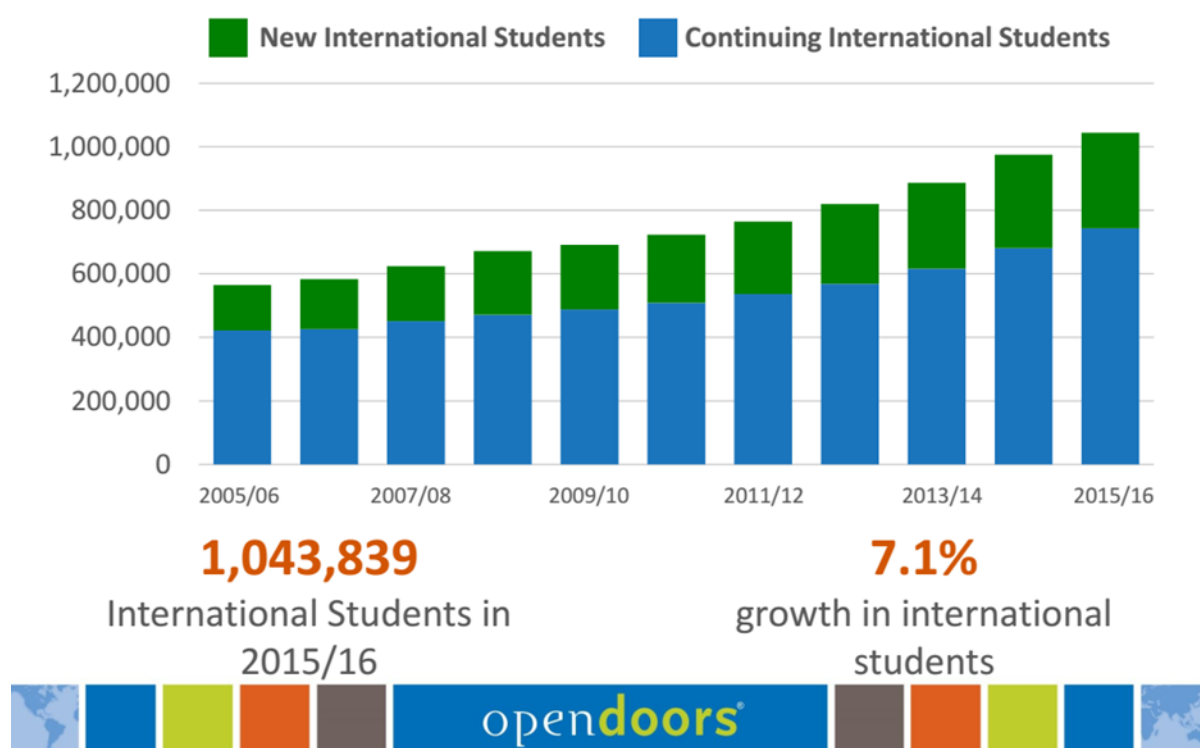


Figure 1: International Students in the United States 2015/16.

Source: Institute for International Education (2016).

<https://www.iie.org/Research-and-Insights/Open-Doors/Fact-Sheets-and-Infographics/Infographics>

The United States as a country is supportive of the influx of international students as Americans will learn to build relationships, study and work with people from other countries (IIE, 2017). Among the increasing number of international students are doctoral students who enter American universities with no or different experiences of doing research (Lee & Rice, 2007). The way of doing research in America may be different from the way universities from other countries do it; hence international students may face problems in learning research at American universities (Wu, Garza, & Guzman, 2015).

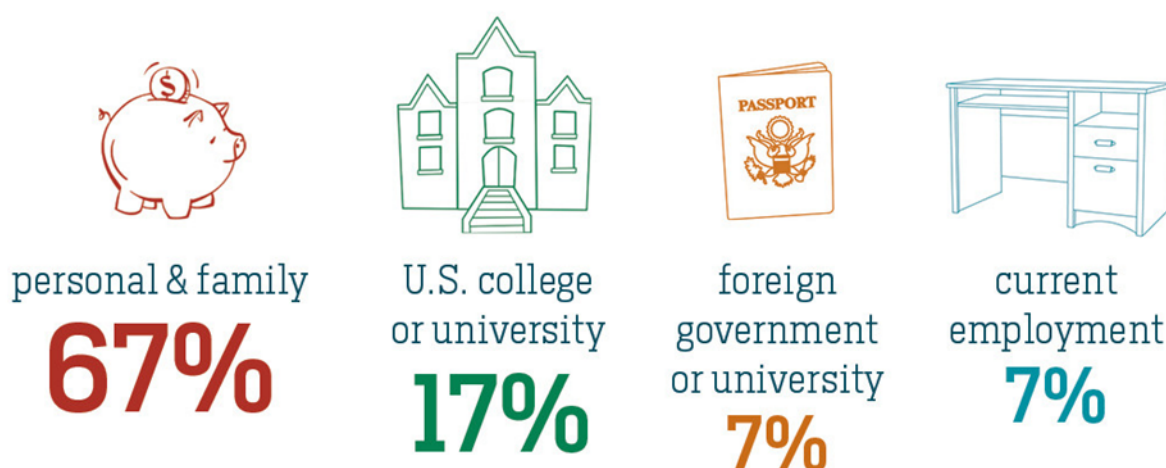
### Purpose of the Study

The purpose of this basic interpretative qualitative study is to explore learning of research experiences and perceptions by international doctoral students who have completed research courses at a private faith-based South-Central Texas university in the United States.

### Significance of the Study

The internationalization of higher education's goal is to produce citizens of the world and this process is fueled by academic and economic causes. There are several factors which contribute to internationalization of higher education in the United States. First higher education must provide the essential academic and professional training for its graduates to meet the specific needs of globalized nations, market labors and economies. Cultural competencies and multilingualism will play an essential role in the institutions of higher education that provide this preparation. The degree of specialization in research in specific fields will require international collaboration. The recruitment of international students provides a great deal of revenue both to the universities and the host countries (Zha Qiang, 2003), demonstrated in Figure 2.

#### PRIMARY SOURCE OF FUNDING FOR INTERNATIONAL STUDENTS IN THE U.S.



**\$35.8 billion** was contributed to the U.S. economy by international students in 2014/15. (Source: U.S. Department of Commerce)

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Figure 2: Primary Source of Funding for International Doctoral Students in the US and their contribution to American Economy.

Source: Institute of International Education Open Doors (2016).

<https://www.iie.org/Research-and-Insights/Open-Doors/Fact-Sheets-and-Infographics/Infographics>

Although a lot has been written in general about international students, very little has been written on doctoral students' learning of research in American universities. Research done in

the area has focused on understanding experiences and courses that help develop successful educational researchers (Leech & Haug, 2015). A PhD in the United States is done by taking research classes, passing a qualifying exam, writing and defending a dissertation. It is imperative to get an understanding of the way international students perceive their learning of research since they are coming from different countries with possibly different educational systems and cultures (Hegarty, 2014). In addition, there are reports that the United States is no longer the only country for international students as Canada and Australia are now offering alternative educational destinations to students from other countries (Hegarty, 2014).

This study will fill the gap in the literature of international doctoral students' learning of research. It may improve policy in the areas of recruitment of international doctoral students, research courses taught, teaching and supervising their research and mentoring.

## **Literature Review**

### **Learning of Research in Research Courses**

Doctoral students need to be prepared for research through enrolling in research courses to become knowledgeable in doing research (Leech, 2012). However, there are few universities that offer research courses at doctoral level in some programs because doctoral programs are designed on the assumption that students took research courses at the Masters Level (Leech & Haug, 2015). The findings from the study by Leech and Haug (2015) showed that most doctoral students completed their Master's degrees many years ago, and that may not be enough to prepare them for doctoral research. This puts international students in a difficult position because their learning of research at Master's level in their countries of origin may not be in tandem with learning of research in America. International students are trained in the same manner as all other doctoral students in the program to become excellent researchers who are well-versed in the accepted methods of collecting and analyzing data in their fields (Golde & Dore, 2001). Some universities do offer research courses at doctoral level.

International students are not generally accustomed to class practices in the United States and they must learn how to adapt to the teaching and learning styles (Kumi-Yeboah, 2014). International students are accustomed to a system of teacher-centered instruction and lecturing (Wu, et al., 2015). International graduate students, especially those from Africa and Asia find it difficult to participate in classroom discussions (Kumi-Yeboah, 2014).

Doctoral students in American universities are expected to work independently during their course of study in preparation of their future (Ren & Hagedorn, 2012). International doctoral students receive support from the universities' International Centers in terms of immigration laws and American culture. Most universities in the United States do not offer academic support services to doctoral students (Ren & Hagedorn, 2012). Most of the academic support is offered to undergraduate and Master's students. Some international graduate students form study groups with American students to learn from each other, and this proves helpful in their learning of research (Gebhard, 2012).

Given the centrality of research at doctoral level, what are the international doctoral students' research training experiences? The PhD is a research degree, and as such, the doctoral program emphasizes training in research, more often to the exclusion of other skills (Golde & Dore, 2001). Golde and Dore (2001) postulated that research training consumes the bulk of doctoral students' lives and is the one area of their preparation that seems successful. As part of research training, students share their research results and scholarship at conferences.

Although students have been encouraged to present at conferences, Golde and Dore (2001) argued that research training is not comprehensive. The reason is that students are not well-informed about all aspects of research, except for what is essential about writing a dissertation. Studies have shown that although publication is regarded as a critical component in the research process, students felt that they were not being prepared by their program to publish, and as such are not confident in their ability to do so (Golde & Gore, 2001).

### **The Role of Faculty**

Faculty plays a crucial role in the international doctoral students' learning of research in different capacities as instructors, mentors and advisors (Kumi-Yeboah, 2014). In dealing with the international students it is important to get a glimpse of what the faculty thinks of international students. The way faculty sees international students in the doctoral program will help when evaluating their role and influence on international students. International graduate students in the United States, in general, are respectful of their advisors and faculty as compared to domestic students (Nguyen, 2013). But this respect, results in international doctoral students failing to come to departmental outings they are invited out of respect. If they were to come, they will come out of respect, and tend not to be free to express themselves for they tend to respect the hierarchy that exist between faculty and student (Nguyen, 2013).

In the United States, it is expected that students take the initiative to build meaningful relationships with faculty both inside and outside of class (Romerhausen, 2013). Another faculty view of international graduate students is that they consider them as hardworking and highly motivated as compared to domestic students (Nguyen, 2013). In that respect, international graduate students have a personal drive to succeed and in doing so, write papers and publish. However, it is the process of publishing that international students are found wanting. International graduate students come from different educational systems that consider everything accessible to them as being in the public domain and fail to acknowledge sources (Nguyen, 2013). In short, international students do not understand the concept of plagiarism in the United States. In this respect, international graduate students have needs, and these needs must to be addressed.

One strategy that helps international students succeed is mentoring. There are many definitions for mentoring; a mentor can be a faculty member, an academic advisor, a supervisor. Odena and Burgess (2015) found that supervisory feedback and mentorship tailored to the students' needs is helpful to international students who have different learning needs. Rose (2005) posited that the most important thing a mentor can provide is open communication and timely feedback. Research by Brill, Gogarty, Balcanoff, Turner and Land (2014) found that students felt that there was no good communication with their advisors and cited that unless students reach out to their advisors, they will not bother to reach out to students.

Academic mentoring is crucial for the success of a graduate international student and it involves emotional and psychological support, role modeling and career guidance (Ku, Lahman, Yeh, & Cheng, 2008). Sundli (2007) reported that mentors contribute to the development of their mentees through personal and professional collaboration. Mentoring is not limited to academics only, but may even include career and professional advice, social and emotional support, and role modeling (Davidson & Foster-Johnson, 2001; Kartje 1996).

International students should not only wait for supervisors' support, mentoring, or guidance, but must learn to become independent and plan their learning. Investing time in personal growth during the doctoral program is important as it gives international students a sense of

accomplishment (Odena & Burgess, 2015) especially in their writing experiences and general research. Personal organization includes time management and balance of social life with academic requirements. However, time management and personal organization varies from student to student and it is important for each student to find a balance that best works for them. Above all there is need to be resilient to be successful at such a demanding level of doctoral studies.

### **Publishing as a Doctoral Student**

Academic writing at doctoral level is extremely important and is challenging especially for international students who are not English native speakers (Chou, 2011). Professors do play a critical role in this process through guiding and supporting international doctoral students (Cho, 2004). International doctoral students can learn from the professor through collaborating by co-publishing research articles (Brill, et al., 2014). For the student to benefit from the professor, it is important that both share a common interest in the topic (Brill, et al., 2014; Kumi-Yeboah, 2014). However, Campbell (2015) found that some professors fail to forge fruitful relationships with international students through failure to understand their situations. In such a scenario, international students may co-author and publish with American students (Campbell, 2015; Brill, et al., 2014).

International doctoral students who write papers for publication consult their local university writing center for corrections (Cho, 2004). In some cases, the students may ask a fellow student especially an American one to review their papers before they do send it for publication (Brill, et al., 2014). Even with all the extra support, international students are frustrated when they submit a manuscript for publication only to get feedback from reviewers asking them to get assistance with the English language (Cho, 2004).

### **Learning of Research Challenges**

International doctoral students face many challenges in the learning of research. As already mentioned, international students coming from countries that have a different educational system than the United States have challenges to adapt academically. Gebhard (2012) found that international doctoral students were frustrated in class when they would raise their hands to contribute in discussions, but only find themselves ignored. International students reported that they need time to think and process their ideas, but they normally are not given the time (Gebhard, 2012).

Another challenge that international doctoral students face, is writing in the English language. Most researchers' writing on international students in general posit that students from other countries face challenges in expressing themselves in English (Brill, et al., 2014; Ku, et al., 2008; Nguyen, 2013). The writing skill is very important for completing a doctorate and failure to write clearly is a challenge for international students (Odena & Burgess, 2015). The immediate result of weak English language skills for doctoral students is that they take time to complete their tasks, and in some situations may not even have all the time to complete presentations in class (Telbis, Helgeson, & Kingsbury, 2014). Odena and Burgess (2015) came up with a generative model of writing development for international students that include tailored supervisors' feedback, resilience and organization, and support network for the successful completion of a doctorate.

The effects of weak English skills may extend beyond the classroom as students fail to socialize from their fellow American students (Gebhard, 2012; Telbis, et al., 2014). Some international students do not fail to socialize but refuse to socialize with American students because they

find it difficult and unnecessary considering that they are in the country for a short period (Hegarty, 2014). Failure to adapt to a new environment creates loneliness and homesickness that may result in anxiety and depression thus affecting the international students their academic outcomes (Banjong & Olson, 2016). These challenges will affect student-supervisor relationship in a negative way.

Other barrier that impacts negatively on international doctoral students' learning of research is the issue of finances. Most international doctoral students support themselves and with the desire to complete their degree, they end up working for many hours to raise money for living expenses (Kwadzo, 2014). The nature of their work may influence them in their learning of research because they end up working for many hours to raise more money thus depriving themselves with study time (Kwadzo, 2014). Telbis et al. (2014) found that international students suffer more financial stress which negatively affected their academic achievement.

### Theoretical Framework

Competence, autonomy and relatedness are the three main factors in Self-Determination Theory (STD; Deci & Ryan, 1995), which distinguished between different types of motivation based on the different reasons or goals that give rise to an action. "The most basic distinction is between intrinsic motivation, which refers to doing something because it is inherently interesting and enjoyable, and extrinsic motivation, which refers to doing something because it relates to a separate outcome" (Ryan & Deci, 2000 p.54); the model is illustrated in Figure 3.

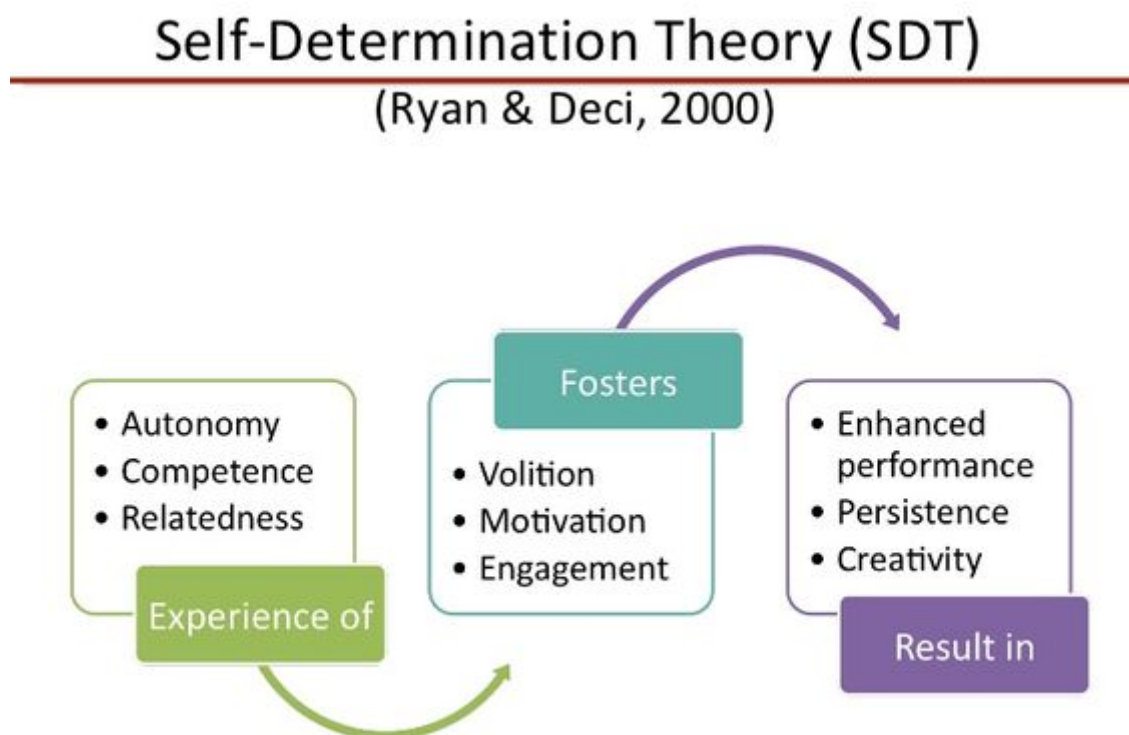


Figure 3: Self-Determination Theory (SDT). Ryan & Deci's, 2000 Theoretical Model.  
Source: <https://i.pinimg.com/564x/2d/a5/e0/2da5e048d227b2198414cccae20a159--self-determination-instructional-design.jpg>

## **Methodology**

The purpose of this basic interpretative qualitative study is to explore the learning of research experiences by international doctoral students who have completed research methods courses at a private faith-based university in South-Central Texas in the United States.

### **Research questions**

The study was guided by the following research questions:

- 1) What are the perceptions of international graduate students on the learning of research at doctoral level?
- 2) How do international doctoral students make meaning of their learning of research?

### **Research design**

The approach used for this study is basic interpretive qualitative research design to understand the meaning of doctoral students in the learning of research. By using basic interpretive qualitative research design, we sought to understand how doctoral students “interpret their experiences, construct their worlds [of learning research], and the meaning they attribute to the experiences” (Merriam & Tisdell, 2016 p.24).

The research design’s purpose was not only limited to understanding how they make meaning of their learning, but also the exploration of the challenges international doctoral students face in the learning of research. Using basic interpretive qualitative research design in the methodology of this study, we aimed at documenting international doctoral students’ perspectives and practices in their natural setting (Reeves, Kuper, & Hodges, 2008).

### **Setting and Participants**

The participants’ sample was composed of four (50%) males and four (50%) females. All the eight participants selected for the study were international doctoral students at a South-Central private faith-based Texas university in the United States. The selection of participants was based on purposeful sampling, specifically focusing on international doctoral students in Education programs. At the time of the research, all participants had completed a minimum of at least three research courses at doctoral level. Among the courses offered at the university were research methods and tools, qualitative research methods, social science statistics and advanced qualitative research design. The participants came from three continents: Africa, Asia and South America. They came to the United States on an F1 Visa [a student Visa given to a prospective student to enter the United States for the purposes of studying]. The participants willingly took part in the study. The settings of the interviews were research rooms at the library of the university the international students attend. We interviewed four participants each.

Although all the participants were adult learners, their ages varied from late twenties to late fifties. We chose not to identify the participants with respect to which country they came from and their stage in the doctoral program because doing so might provide leads to the identity of the participants. The nature of the study, purpose for the interview, IRB and Participant Consent form were sent via e-mail before data collection process. We explained confidentiality and possibility of withdrawing from the study at any time to the participants. For the purposes of privacy and anonymity, pseudonyms are used throughout this research paper.



### **Data Collection**

For data collection, interviewing was used for this study to effectively gather, describe, interpret, and understand the learning and conducting of research by international doctoral students. The interviews were semi-structured and open-ended to allow student participants time and scope to express their opinions on their experiences and views on learning of research at doctoral level. Brenner (2006) describes semi-structured interviews as: “interviews in which the intent is to understand informants on their own terms and how they make meaning of their own lives, experiences and cognitive processes” (p. 367).

The length of the interviews varied from 45 minutes to 1 hour and ten minutes. We prepared a few interview questions and some of the questions were probing and follow up questions. The probing questions were to gather more information if we felt that we needed more relevant information than what the participants provided. We conducted all the interviews in the English language. All the interviews were audiotaped and transcribed.

We used Audacity software to listen to the audio files during the transcription process. We constructed the transcript using Microsoft Word. We first listened to the interviews to familiarize ourselves with and to get the general sense of the material (Creswell, 2012). We both transcribed verbatim, and always tried to make meaning from the conversations. We embarked in a strict transcription process where the words that are spoken, heard and recorded are written down by us as transcribers (Hammersley, 2010). Both of us as co-researchers decided not to share their transcripts with the interviewees because of time constraints.

### **Data Analysis**

We used Spradley’s (1979) domain analysis in analyzing our data for this study. Ratcliff (n.d.) defines domain analysis as the analysis of language of people in a cultural context. We used domain analysis because we were interested in understanding relationships among concepts (Leech & Onwuegbuzie, 2007) in the learning of research by international doctoral students. The first step in domain analysis we did was to analyze each sentence to identify emergent themes and categories across interviews from participants interviewed (Spradley, 1979). What this means is that we broke down complex sentences into shorter semantic relationships of meaning. Domain analysis involves the following process as conceptualized by Spradley (1979) and is illustrated in Figure 4.

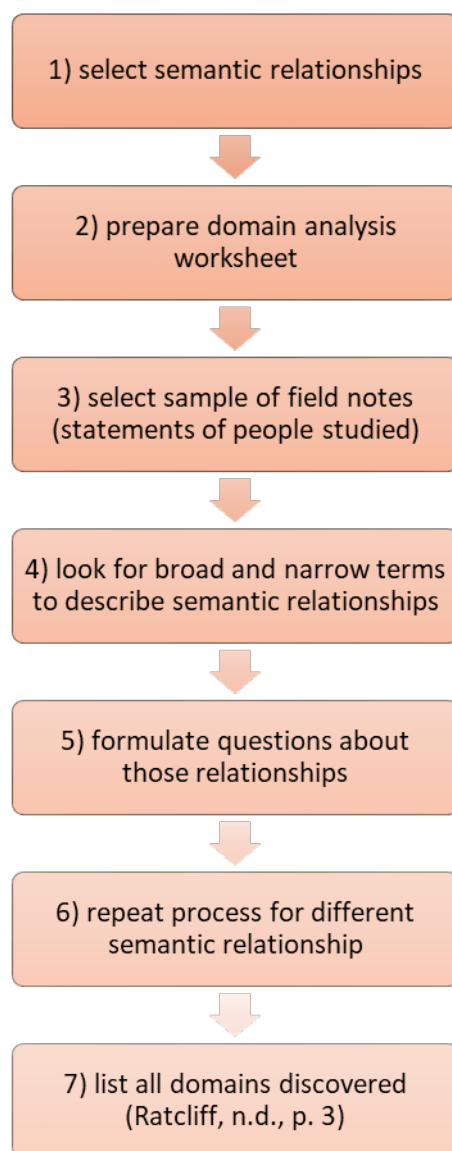


Figure 4: Domain Analysis as Conceptualized by Spradley (1979).

## Findings

We analyzed transcripts and identified the following recurrent themes which explain the views and perceptions on how international doctoral students learn research: taking doctoral courses, collaborating with others, conducting individual work and research and using resources at the university.

### Taking Doctoral Courses

International doctoral students said they value the courses that are offered in the doctoral program, especially those that are research oriented. They envision that the purpose of the doctoral courses is to help them write the final project, and that is the dissertation. The doctoral courses have helped them in the process of learning of research.

This interview . . . is something which . . . was new to me. I learned it in class. I had talked to people before, but it wasn't like [a] formal semi-interview, so I learned to interview. I learned about IRB. I had heard about ethical, conducting

research in an ethical manner, but I had not personally done IRB. So, to do that process was something I learned. So, I learned the process. – Richard

In academic writing [course] I learned . . . how to research, how to write literature review, step by step research process from the introduction to the conclusion. I took this class to learn how to write research. – Charlene

Participants also stated that, through taking research courses, they learned to adapt to academic writing styles that are expected when you are a doctoral student. They also learned paper organization and APA style which the students admitted is a new phenomenon. The students valued the classes, but stated that learning of research is challenging yet interesting and eye-opening. Although the participants valued the research courses that are offered at the doctoral level, they stated that they were against other courses that were not research oriented. The students posit that these courses do not help them in any way, and they consider them as a waste of time and resources especially money.

I think sometimes it [learning of research] is boring and sometimes interesting and of course challenging . . . You have to read many articles . . . but you are not getting what you are looking for. That is one of the frustrating things. – Peter

I would really prefer that . . . we come in, we are taught on research, and then we do our research and we leave. That might help us . . . a lot in terms of cost, in terms of length and [other] resources. I fail to see the relationship between other classes which are not research classes and the research itself because the end product is the research. – Richard

The students also identified the role of professors in the learning of research as vital. They stated that professors helped them to learn through encouraging them to read extensively as individuals and work in groups. Apart from teaching them, the students said that the professors encouraged them to publish. Only one student stated that some professors told him not to bother about writing for publication, but to concentrate on finishing the PhD and move on.

She [the professor] encouraged me to participate in class; she developed me, and took my research to the next level. The professor walked us through the process of writing for publications. The professor was very personal and helpful. – Charlene

“Two or three of my professors have often said it’s not . . . the best to target publication for your work. The best thing is have the PhD first, and then think of the publication. – Richard

### **Collaborating with Others**

The students valued collaboration with others especially domestic students and professors in the learning of research and publishing of articles. As international students, participants said that working on group projects is of benefit to them as ideas are pulled together and this enables the students to finish a project in time. The students also felt that by working in pairs or groups, they learn from each other as different people bring in different ideas. Group work allows for division of responsibilities. International doctoral students stated that they have no problems in working in groups or collaborating with others and they help them learn doing research.

The positive sides [of working in groups] are like we can divide the responsibilities in different parts, like someone can do literature review, another can plan to collect data, another one can help analyze data . . . Ideas are pulled together and we cover a lot of ground faster; different people bring in different ideas. – Peter

They [domestic students] will support my research, they tell me use this article, go this way. Americans help me [to] improve my English. – Charlene

Two students stated that, when they work with domestic students, they realize that they have an advantage over them in terms of language. The students stated that the domestic students are not patient with them when they take time to express themselves in groups.

. . . this research in group doesn't help me, because I was working with American people. They were so smart; they were so sure. So, I do not learn in this project [because] they do not give you chance to contribute. – Charlene

I think language is an area where they [domestic students] have an advantage. They have an advantage of studying using their own language whereas as an international student, this is my second language. I have problems in paraphrasing [and] is something very difficult, to find appropriate words that I want to say because the best words are already said in other articles. – Peter

### **Individual Work and Research**

International students felt that group work sometimes suppressed their complete individual learning of research. In that respect, the students favored doing individual work and research. They stated that it is important for them to work individually so that they get a complete knowledge and grasp of whole research process. One participant stated that it is better to work individually rather than with domestic students because they want to personalize the whole process.

. . . if you do it [research] by yourself, you are able to do the whole thing. You have the kind of complete experience of research. Whereas, [if] you do it in a group, though you are able to write, read the whole thing, but you are not gaining the experience doing the full research by yourself. – Peter

Now this semester I started doing literature review by myself. I asked a teacher what a literature review was and another teacher for help, and I look on the internet and I wrote my own literature review. That's how I learned doing research. – Charlene

When we work in groups with American students, they want to report individually saying 'I did this, and this person did that.' I would rather work alone [than] with American students. – Diana

### **Use of Resources**

Many of the international doctoral students we interviewed reported the benefits of using resources to learn research. The students identified the graduate study rooms at the library reserved for graduate students as a vital resource that enables them to study without being interrupted. They even stated that they chose the study rooms for the interviews because they

were quiet places of individual and group study. One participant identified the doctoral dissertation room that is reserved for those students in the writing stage of their dissertations for use. Apart from the study rooms, international doctoral students also cited the graduate workshops that are held for their benefit. The students said that the library offers many resources that are geared towards improving their learning of research.

I attended SAGE research workshop and asked help from librarian for doctoral students. I attended two conferences and the office of Graduate Studies was helpful with that [in attending]. – Diana

Doctoral dissertation room is a nice place for us. I go in there and do my work quietly without disturbances. The library has good research facilities . . . like books, large database, [and] many computers. [In addition] . . . they hold workshops for our benefit. – Peter

Although some acknowledged the available resources for doctoral students that international students can access, one student said she was not aware of the existence of these resources. She pointed that the resources that were available were for undergraduates, and it would be “a shameless thing to attend undergraduate workshops.” The student stated that if there are resources for doctoral students, then they are not being made known to students.

### **Discussion**

The purpose of this basic interpretive qualitative study was to explore learning of research experiences for international doctoral students who have completed research methods courses at a private faith-based university in South-Central Texas in the United States. Our aim was to provide international doctoral students’ perspectives on learning research through exploring their individual doctoral research experiences. Although the perceptions varied for each participant, this research shows similar experiences shared by all participants, as demonstrated in Table 1.

Table 1: Sample Domain Analysis Worksheet

<b>Cantu &amp; Gomba-Sample Domain Analysis Worksheet – First Interviewee</b>				
<b><i>Included terms</i></b>	<b>Semantic Relationship</b>	Cover Term	<b>Semantic Relationship</b>	<b>Domain</b>
<i>Completed all Research Courses</i>	<b>It is a way To Learn</b>	Research Courses	<b>It is a way To Learn</b>	Research
<i>History of research understood research terms Did a prospectus</i>	<b>It is a way To Learn</b>	Research Methods	<b>It is a way To Learn</b>	Research
<i>group project pair work</i>	<b>It is a way To Learn</b>	Qualitative research classes	<b>It is a way To Learn</b>	Research
<i>Has knowledge of research hands on experience</i>	<b>It is a way To Learn</b>	since first degree (Masters)	<b>It is a way To Learn</b>	Research
<i>group project pair work</i>	<b>It is a way To Learn</b>	Qualitative research classes	<b>It is a way To Learn</b>	Research
<i>ideas a pulled together cover a lot of ground faster different people bring in different ideas</i>	<b>It is a way To Learn</b>	working with groups	<b>It is a way To Learn</b>	Research
<i>interviewing process IRB Ethical considerations Process of doing the interview</i>	<b>It is a way To Learn</b>	Qualitative Research Design	<b>It is a way To Learn</b>	Research
<i>Published a literature review</i>	<b>It is a way To Learn</b>	Publication	<b>It is a way To Learn</b>	Research

Helping doctoral students obtain the skills and knowledge required of them to be scholars may be the focal, integrative goal of pre-dissertation doctoral education. International doctoral students may be trained in research techniques through hands on experiences. Such preparation constitutes the foundation for choosing a relevant dissertation topic and mastering appropriate methods of data collection and analysis (Boote & Beile, 2005).

Although the students admitted to taking research courses at masters' level, they admitted that they did not even understand what they were doing. This is supported by Leech and Haug (2015) who found that doctoral students do not always have the research knowledge purported to have been acquired from their Master's program. In addition, students felt that the Master's program did not adequately prepare them for doctoral research. Thus, it should be emphasized that the goal of the PhD program is to prepare doctoral students to be the next generation of researchers (Gardner & Barnes, 2007).

At the heart of taking doctoral research courses, international doctoral students valued the work that their professors did to help them become competent scholars and researchers. Cho (2004) found that professors played a critical role in guiding and supporting international doctoral students in learning and doing research. The international doctoral students in this study consider professors as key to their success as they always challenge them to succeed through encouraging them to read and write for publication. The students cited professors as providing them with direction in a process that we might call mentoring. Mentoring is crucial to the success of doctoral students, whether domestic or international, as it results in high graduate success rate (Brill, et al., 2014).

Collaboration with others also emerged as a factor that influences international doctoral students in their learning of research. Students were divided on this issue with some citing it as beneficial while others felt the relationship with domestic students was not worthwhile. Some students stated that collaborating with a professor helped them to better learn the research process. Cho (2004) found that international doctoral students' role in collaborative work was of "administering a survey and analyzing the raw data" (p.65). The international doctoral students collaborated with professors in writing papers and publishing.

Collaboration with domestic students was not seen as beneficial by some of the international doctoral students. They cited language as an issue with their interaction with domestic students. Wu, et al. (2015) found that international students encountered problems in communicating with others in English as compared to writing. International students' work shows their linguistic limitations, and because they are aware of it they feel uncomfortable and powerless to contribute (Leki, 2001). The international doctoral students suffer from prejudice and discrimination and are marginalized in academic discussions as they make conclusions for them (Wu, et al., 2015).

The use of resources by international doctoral students that help them to adapt to American culture at a university is of utmost importance if students are to succeed (Wu, et al., 2015). Students are treated as equal in accessing resources at universities, but the way they access these resources put other students at an advantage in learning research (Cho, 2004). This study showed that few international students managed to identify resources available to them, while others did not even know the resources which they had access to. The argument provided by Cho (2004) is that the rate of access to academic resources might influence the way students learn and publish research papers. Wu, et al. (2015) found that international students used library resources as a strategy to adjust to American education system and learn research.

## **Conclusion**

International doctoral students in the United States play a critical role in the economy, social life, unifying people and bring new experiences in higher education (IIE, 2014; Witherell & Clayton, 2014) yet very little is known on how they learn research (Wu, et al., 2015). This study may have policy implications in the recruitment, retention, and training of international doctoral students. By studying the international doctoral students' experiences in learning research, we uncovered valuable information in encouraging this underrepresented population to conduct interdisciplinary research, highlighted intercultural competencies and consciousness, while promoting globalization and internationalization in higher education in the United States.

## **Recommendations**

Through the findings of this study, we aimed at setting high standards in the training of international doctoral students. It is recommended that more mentoring programs are done for international as well as domestic doctoral students (Brill, et al., 2014; Sundli, 2007). Mentoring programs enable the students to become aware of their capabilities and ready to do challenging tasks at doctoral level (Ku, et al., 2008). In learning research, it is recommended that professors and advisors should try to create a more inclusive classroom environment for international doctoral students considering that these students come from different cultures. Additionally, professors should be aware of the difficult acculturation process and language barriers the international doctoral students face.

Furthermore, faculty and advisors should ensure proper dissemination of information regarding resources such as research assistantships, library access to databases, workshops, conferences, writing centers, and tutors. Information is power and the international doctoral students feel powerless because they often do not receive this information.

There seems to be a lack of coordination between the office of international student services and the various academic and counseling services. To this effect the centralization of all the services for doctoral international students is suggested and to be directed by a "Dean of doctoral international students". It is recommended that further studies in international doctoral students' learning of research by be carried out.

## **Limitations**

Our basic interpretive qualitative study was exploratory in nature. Although the participants were drawn from three continents, our findings may not be generalized to all international doctoral students in American universities due to the small sample of participants. We both came originally to the United States as international graduate students, and we engaged ourselves in reflexivity to limit bias, but we cannot completely rule out this bias towards favoring international students.



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