# International Doctoral Student Research Self-Efficacy Scandal:

# A Case Study of Chinese University

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**Abstract**

The internationalization of Chinese higher education glimmers the hope for globalization and opened the doors for countries to exchange academics treasures and cultural exchange. The euphonious and mellifluous agenda behind the internationalization led the nations towards the silver lining of collaboration, interaction, and human resources exchange. However, a large volume of literature claimed the poor academic performance of international students and weak academic communication between international students and Chinese faculty members. So the study sought to explore the phenomena through doctoral. Student experience regarding their research self-efficacy development in a Chinese university. Thus, we took one Chinese university as a case due to its high accessibility of international students with broad and deep experience of being an international student in China. Our participants were international doctoral students from Asian and African countries with significant financial desperation. The findings shed light on the intention of international to pursue a doctoral degree in Chinese higher education and how it significantly delayed their research self-efficacy development.

**Keywords:** internationalization of higher education, research self-efficacy, international students

## 1. Introduction

Higher education's internationalization becomes a resonant phenomenon (Egron-Polak & Hudson, 2014; Khalid et al., 2020). Massive propagation of international students has driven academia's concern to investigate their social-cultural learning experiences (Kinginger, 2009). Further, scholars mentioned challenges of international students as social adjustment (Kim 2001), quality of graduate students learning outcomes (Ardakani et al., 2011); for instance, a US study noted that the academic and cultural stress among international and doctoral students (Maschi et al., 2013). Likewise, a qualitative study of 200 international students in Australia confirmed that internationals face challenges during their study time abroad due to language and communication barriers (Sawir et al.,2012). Their study also indicated that language and communication constraints limit international and local students' relationships in higher institutions (Sawir et al.,2012).

Recent scholars enlightened that international student as "students who traveled to any overseas country to pursue their educational needs" (Hussain & Shen, 2019 P. 80). The majority of international students comprise doctoral students who are pursuing their Ph.D. degrees in different disciplines took the attention of scholars in investigating and exploring their academic journey. Generally, the fundamental goal of doctoral studies is to produce competent and productive researchers with the aim of the socialization process (Adams, 2004; Park, 2005; Love et al., 2007; Lambie and Vaccaro, 2011; Murakami-Ramalho et al., 2013; Lambie et al., 2014; Kakupa and Xue, 2019; Lamar et al., 2019; Cobb et al., 2020; Stadtlander et al., 2020; Khalid and Tadesse, 2021). Lambie and colleagues stated that a given doctoral student is expected to have a research skill to drive research problems, develop a rigorous research design, instrument, data analysis, and write a robust research finding and implication in terms of research thesis and publications (Lambie et al., 2014). Accordingly, Lambie's previous study stressed that doctoral students with prior and current research publications informed them that they had built confidence in their research expertise (Lambie and Vaccaro, 2011).

Moreover, to produce a competent researcher or doctoral students is a challenge for the higher education, to develop different research stages (coursework, thesis writing, and defense) of doctoral studies and smooth communication with supervisors (Park, 2005; Love et al., 2007; Wang and Li, 2011; Chesnut et al., 2015; Cobb et al., 2020). Similarly, cross-sectional study evidence on USA postgraduate students indicated that students develop and exhibit a significant research self-efficacy due to decent support and guidance from their mentors (Wang and Li, 2011; Chesnut et al., 2015). Besides, supervisors involved in their doctoral student research tasks build student perception on their research skill confidence (Overall et al., 2011; Cobb et al., 2020). Overall and colleagues' survey on 35 institutions across four countries indicated that doctoral students who obtained sufficient support and guidance from their complementary supervisors promote the belief of their research skill (Overall et al., 2011). Besides the supervisor, the most significant factor in the doctoral academic journey is their self-efficacy and confidence.

However, most investigations regarding doctoral students in academics encountered the mentorship themes significant in doctoral studies. A doctoral student requires extensive mentor-ship from their supervisors to boost their attitude and confidence in their research skill for productive afterward academic profession (Love et al., 2007; Overall et al., 2011; Stadtlander et al., 2020; Khalid and Tadesse, 2021).

Fortunately, the self-efficacy concept has shown to what extent it develops and improves once motivation and performance in a given task. In this study, research self-efficacy represents the capability and ability to accomplish research-related duties (Stadtlander et al., 2020), which brought our motive to explore how international doctoral students progress their self-research interest and confidence in their skills and competencies. Given evidence indicated that doctoral students with robust self-research efficacy exhibit a good interest and motivation in working on researches (Bieschke et al., 1996; Rezaei and Zamani-Miandashti, 2013; Lambie and Vaccaro, 2011; Overall et al., 2011; Lambie et al., 2014; Lamar et al., 2019; Petko et al., 2020). Therefore, doctoral students' attitudes towards research influence how they perceive all the activities inside conducting research (Lambie and Vaccaro, 2011; Rezaei and Zamani-Miandashti, 2013). Thereby, obtaining a substantial research skill became an individual challenge among higher education students (Murakami-Ramalho et al., 2013; Khalid et al., 2020). Accordingly, supervision became a challenge for faculties to furnish adequate mentorship to create a reliable and bold doctoral scholar (Overall et al., 2011). Likewise, supervising international students fetch their queries due to language and cultural divergence (Wang and Li, 2011). However, doctoral students are expected to have solid prior professional, academic, research skills and awareness that obligated to discover new knowledge and disseminate it for others through research publications (Love et al., 2007; Stadtlander et al., 2020), the only way international students can contribute their part is through a reliable research self-efficacy (Rezaei and Zamani-Miandashti, 2013; Lambie et al., 2014; Petko et al., 2020).

Hence, the institute and supervisor have the same expectation from them. Research self-efficacy is not the skewed capabilities of students. Moreover, it is essential to design the strategies to underpin research self-efficacy with educational curricula to facilitate graduate research students (Forester et al., 2004). Consequently, an earlier study in higher education investigated the research self-efficacy of doctoral students, and the evidence showing that self-efficacy reinvigorated students' interest in research (Bandura, 1986; Rezaei and Zamani-Miandashti, 2013; Lambie et al., 2014; Chesnut et al., 2015; Kakupa and Xue, 2019).

Generally, in doctoral programs, students come from diverse disciplinary backgrounds, on top of this with administrative professional and career expectations (Love et al., 2007; Cobb et al., 2020). Besides, most doctoral students commence their research journeys with inadequate research skills, and their level of research can be increased with the research training environment and university course orientation (Lamar et al., 2019). Nevertheless, little literature in non-Anglophone countries like China exists; fundamental literature concerning international students has been found in English-speaking countries (Ding, 2016; Yu, 2010). Likewise, scholars have focused only on investigating doctoral student supervision and research environment. Thus, the study sought to explore international student experience as a doctoral candidate in developing their confidence and skill on research-related tasks as being in Chinese universities, which no study by far investigate student research efficacy progression as an international student with an unusual educational and social setting.

## 2. Research Context

Recently, China became the hub of intentional students worldwide seeking quality tertiary education through different Chinese government scholarships (Larbi and Fu, 2017; Latief and Lefen, 2018; Hussain & Shen, 2019; Ding, 2016). As a result, China took over the place of previous international student center leading countries such as the UK, the USA, and this making international student in China the focus of scholars to dig about their experience (Sawir et al.,2012; Larbi and Fu, 2017; Ma and Zhao, 2018; Hussain and Shen, 2019; Ding, 2016; Jiang et al., 2020). A recent report by the Chinese Minister of Education revealed that in 2019, 25,618 international students enrolled in Doctoral

programs in Chinese public universities (Jiang et al., 2020). However, several studies stated about loose and irrational of Chinese international student recruitment and selection approach (Wen et al., 2018; Ma and Zhao, 2018; Gao, 2019; Ding, 2020; Jiang et al., 2020), which mainly takes from countries from Africa and Asia with lax selection procedures (Latief and Lefen, 2018; Jiang et al., 2020). The influx of these international students' expansion has increased cultural, language, and academic quality challenges for Chinese higher education as regards Chinese higher education internalization scholars mostly explored international student experience and perceptions in China regarding their academic and social life context (Ding, 2016; Larbi and Fu, 2017; Fan et al. 2018; Jiang et al., 2020).

Accordingly, a shred of recent evidence stated that international students are highly dissatisfied with the quality of Chinese higher education, which is lower than the international benchmarks (Ding, 2016; Larbi and Fu, 2017; Ma and Zhao, 2018). A study regarding international doctoral researchers reported inadequate departmental support, insufficient focus on their research projects, and weak research collaboration with their supervisors (Larbi and Fu, 2017; Byram, 2018). Contrary to this, Chinese supervisors and international supervisees have shown that doctoral students find the existing system valuable and strong identification with the education system to get educational opportunities (Wang and Byram, 2018). That is due to the decent scholarship the Chinese government offer with less effort and competition. On top of supportive supervision for solid research culture, the learning environment also plays a double role in the progression (Holbrook et al., 2014; Larbi and Fu, 2017;

et al., 2019). Further, the literature in Chinese universities addressed that the educational facilities are exclusive for the international student (Larbi and Fu, 2017; Jiang et al., 2020). In addition, several studies explored numerous challenges such as the academic, socio-cultural, and language (Sawir et al.,2012; Latief and Lefen, 2018; Hussain & Shen, 2019); and the lack of quality assurance system and supervision; inadequate English proficiency of faculty as a hurdle between effective academic communication (Sawir et al.,2012; Wen et al., 2018; Latief and Lefen, 2018; Hussain & Shen, 2019; Jiang et al., 2020). Additionally, insufficient English scholarly materials and library facilities and restricted internet access to international academic web browsers (Sawair, 2012; Ma and Zhao, 2018; Hussain & Shen, 2019).

The latest literature demonstrates massive miscommunication and misunderstanding between international students and Chinese supervisors owning to English language handicap (Ma and Zhao, 2018; Hussain & Shen, 2019; Jiang et al., 2020). Else, as a recent study implication indicated that international students are setting in Chinese higher institutions in the interest of gentle scholarship eligibility, geographical proximity, and parallel advantages, but not for educational value (Ma and Zhao, 2018). In the meantime, the doctoral student will compete in the international academic and labor market (Park, 2005).

Consequently, recent literature reveals that it is feasible to foster doctoral students' confidence in their research skills and identity through internationalized faculty. The academic research outcomes of doctoral students are far below the expectations and lacking standards, productivity, and innovation in research (Fan et al., 2018). Buttressed with a certain kind of evidence, which only depicts one side of international students' academic challenges in China, is complicated. There are increasingly substantial obstacles standing in the way of international students' academic progress, involving their research skills; for doctoral students at higher education, research skills are essential (Adams, 2004).

Hence, according to frequent traces and suggestions were given by several pieces of literature to conduct our study so that we can spotlight on individual experience to get concrete and valuable findings (Wang and Li, 2011; Chesnut et al., 2015; Jiang et al., 2020; Petko et al., 2020; Stadtlander et al., 2020). Hence, this study sought to explore how international students grow and enhance their research self-efficacy in Chinese higher education. The main research question was to find out how do international doctoral students develop their self-efficacy towards research? Our study explored through the students' voices regarding their research self-efficacy developed.

## 3. Theoretical Framework

### 3.1 Research Self- Efficacy

Sweeping the purpose, Bandura's (1977) research self-efficacy theory supports exploring international students' research self-research efficacy development in Chinese universities (Ma and Zhao, 2018). Research self-efficacy notion has been driven from the self-efficacy theory of (Bandura 1977). Self-efficacy is the perceived outcome of individual previous performance accomplishment experiences that reinvigorated confidence to face a challenge (Bandura, 1997). Hence, the students with famed beliefs encounter the adversity of challenges and distrust their capabilities slacken their efforts, or give up quickly (Bieschke et al., 1996; Bandura, 1997). Also, self-efficacy provides the guidelines on how the individual develops and enhances efficacy, effects on their performance to

accomplish tasks; it impacts on attainments and human motivations (Bandura, 1992a). Further, Bandura (1997) elaborated self-efficacy sources comprising mastery experiences, vicarious experiences, social persuasion, and physiological indicators. Mastery experience refers to the early experiences of an individual, and vicarious experiences represent individuals means of enhancing belief in their skill by observing and seeing counterparts accomplishment specific tasks; verbal encouragement also influences performance, especially the effective coaching from a mentor and peers helps to boost the self-efficacy of individual and emotional or physiological states present the dealing with stressors experiences that individual faced and left these deteriorates feelings aside and focused on tasks and accomplish the goal.

Akerlind (2008) noted that the progression of confidence in research among doctoral students at their early stages is the ultimate way to develop as a researcher; "not just development of skills, but also a sense of confidence that you are on the right track with your research" (Akerlind, 2008 p. 246). Studies noted the predictors of doctoral research productivity and their research interest; research self-efficacy is the fundamental element (Lambie and Vaccaro, 2011; Lambie et al., 2014; Kakupa and Xue, 2019). Therefore, research self-efficacy became the critical determinant of research productivity of doctoral students and predictor of their future research career (Forester et al., 2004; Murakami-Ramalho et al., 2013) and on the other hand, inadequate research skills of doctoral students' dwell towards stressors and anxiety (Maschi et al., 2013; Hussain & Shen, 2019; Kakupa and Xue, 2019; Cobb et al., 2020). The latest survey study at a Chinese university noted depression and stress among international doctoral students regarding obtaining, implementing, and disposing of knowledge through research activities (Kakupa and Xue, 2019). Besides, as stated earlier in our study, international doctoral students' academic hurdles and lack of adequate supervision, language, and culture communication disputes led them to academic anxiety and stress (Wang and Li, 2011).

However, the doctoral students' are future prestigious academic scholars who have to teach and support the students by using the research skill they build at their doctoral level (Murakami-Ramalho et al., 2013; Lambie et al., 2014). Hence, a positive attitude towards research self-efficacy is the first significant step to achieve the research outcomes of doctoral study (Nazari et al., 2020). Studies noted that from the four sources of research, self-efficacy, early research experience, and vicarious experience are the most robust predictor of once research self-efficacy development (Love et al., 2007; Chesnut et al., 2015; Stadtlander et al., 2020). A qualitative study on 20 international students in Chinese universities illuminates that on students' research development and progression, the guidance and academic support from their peers has an influence (Hussain & Shen, 2019).

Studies noted that doctoral students' inadequate research efficacy is one reason for their mental stress and anxiety (Maschi et al., 2013; Rezaei and Zamani-Miandashti, 2013; Kakupa and Xue, 2019; Cobb et al., 2020). Therefore, a doctoral student who resists these challenges and develops research self-efficacy can eliminate the research anxiety. For instance, a recent study claimed that adequate supervisor support and guidance could increase doctoral students' research self-efficacy (Cobb et al., 2020). Moreover, Cobb and colleagues point out that only adequate supervision can boost doctoral students' research capability (Cobb et al., 2020).
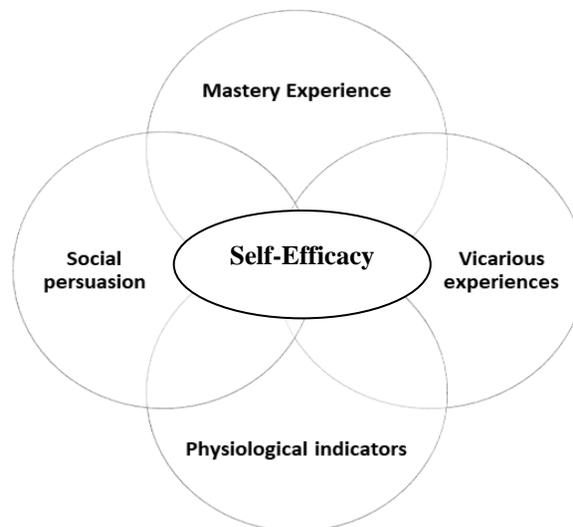


Figure 1. Bandura self–efficacy model (1997).

## 4. Research Method

The qualitative exploratory research approach adopted an inductive way of research. Since our study sought to understand how the international doctoral student is developing their research self-efficacy, we considered (Overall et al., 2011) not to use only research publication to measure doctoral students' robust research self-efficacy. So the nature of qualitative research is to provide the comprehensive understanding of phenomenon 'the focus is on the process, understanding, and meaning; the researcher is the primary instrument of data collection and analysis; the process is inductive; the product is richly descriptive' (Wang and Li, 2011; Murakami-Ramalho et al., 2013; Lambie et al., 2014; Larbi and Fu, 2017; Hussain & Shen, 2019). Twelve international students were nominated through convenient sampling comprised of 12 nations and their diverse academic disciplines (see Table.1), with approximately two three years of experience as a full-time doctoral student in a Chinese university, and all of them were in the way of dissertation writing and publication process. Semi-structured interviews were conducted during August 2020 by utilizing English, French, and Arabic as a medium of interview language according to our participants' preferences.

Table 1. International Doctoral Students Personal Profile

| Respondents | Academic level | Country | Program | Origin of Master |
|:---:|:---:|:---:|:---:|:---:|
| A | PhD | Ethiopia | CSC | Home University |
| B | PhD | Bangladesh | CSC | Oversea |
| C | PhD | Kenya | CSC | Oversea(China) |
| D | PhD | Senegal | CSC | Home University |
| E | PhD | Algeria | CSC | Home University |
| F | PhD | Indonesia | CSC | Home University |
| G | PhD | Nigeria | CSC | Oversea(China) |
| H | PhD | Ghana | CSC | Home University |
| J | PhD | Nigeria | CSC | Home University |
| K | PhD | Kazakhstan | CSC | Overseas |
| L | PhD | Vietnam | CSC | Oversea(China) |
| M | PhD | Ghana | CSC | Oversea(China) |

### 4.1 Interview Strategy

We organized interviews while two of the researchers' present; one conducted the interview, and the other recorded the information with each participant. The interview protocol was followed to keep the interview on track. All the interviews were audio-taped, with the participants' permission, and each interview was between 40-45 minutes. The probing questions technique expert participants' permissions accounts of their experiences. Besides our study context and objective, we allowed the participants to share their experience in their languages (English, French, and Arabic) with us for richly detailed accounts of their experiences. Thus, one of the authors is fluent in Arabic and French, so we interviewed by considering our participants' comfort. After the interview, all Non- English interview records and transcription were translated into English to address the study's purpose. The data transcription has been done by three researchers who have the full command of these languages, the two with English, French and Arabic (native) language expertise to transcribe the data into the English language for interpretation. Thus, to ensure reliability and credibility, we adopted a probing strategy to articulate the narratives. That enables us to understand the contradictions and similarities in their point of view regarding our objective.

## 5. Research Findings

### 5.1 Research Progression

Regarding the research performance during their doctoral program within the Chinese university, most participants mentioned that they feel confident about their research skills and feel energetic to conduct research. As Bandura (1986) mentioned, "the higher the sense of efficacy, the greater the effort, persistence, and resilience; according to theory, beliefs influence the motivation and efforts to attain these goals. The individual with prior knowledge and skills indicates on this choice of a task, but the outcome of this task powerfully influence the ways in that individual put the efforts to gain the desired outcomes"; Bandura (1997), "a resilient sense of efficacy" (p.80). As L said, "Being resilient, persistent, and open-minded to the learning, I can say enhanced my research skills, and my beliefs and my

passion for my field and to know about other research experiences and getting their guidance." As J stated, "well, my beliefs on my research are strong because of my previous skills. Since the day I first built, I made my skills on good foundations and did not have any confusion on my skills". As G marked, "I am confident I can say and its long way to go so I am working to boost my skills day by day to meet an excellent level"; likewise F demonstrate the same, "I have more confidence in my research and um, I have learned many things mostly on the technical side"; the respondents while describing their research progression mentioned like A marked, " I groomed my skills I can say I am fully competent about my skills and grow myself as a researcher by watching videos and reading papers and I learned how to organize data and analysis… yeah sometimes I got the help from my supervisor; Ahhh, I am happy because I grow myself, I taught myself besides my research performance I am happy with my progress in research. I have learned a lot. Especially in China, my performance is good"." Likewise, D described, "You know Ph.D. is not like the master program in terms of the workload of research, …but the research experience I came up with is helping me…and my skill is boosting because learning the same thing I did before just I can say Ph.D. is more comprehensive and deep learning…my research knowledge is improving, I attended seminars, and workshops and the reading literature I can say helped me a lot". Similarly, B declares the progression as, "My research performance, I can say it is ok; during my stay in this university, I try to do researches without any one's support, even without a supervisor; I think I did a good job and I enhanced my skills in different ways like I wrote conference papers and have attended several seminars to improve my skills and knowledge…of course, I can say I am more skillful as before, due to different academic courses and academic environment. I can see my growth as a researcher; even it is more complex than other academic stages, so actually, these academic challenges made me more competent regarding my research".

Likewise, H concluded that "I can say my skills groomed with the academic courses and workshops which I have attended; I can say research methodology course helped me a lot to analyzing data and improved my self-efficacy towards the research skills; indeed in my department there are several academic activities like seminars and academic conference I try to attend all these o enhance because I believe more I know more I groom my skills and for that, I have to put efforts" as coursework can in some ways be seen primarily as a form of vicarious experience (Bandura, 1977). Correspondingly, L discusses how he enhances and made efforts to conduct the experimental research, which was rare for him, and he noted the progress in his skills, "Well, I can say big yes. I did progress as a researcher in my doctoral program. It was not easy for me. I got familiar with the latest research approaches, and I am doing experimental research; it was difficult for me to conduct this type of research because I have not had the experience, but I was having the confidence to take the chance and learn something new; back home only the experiment research is for the natural sciences not for social sciences, but here I got this experience, and I am glad I took it and made it". While C interpreted the improvement through the numeric, "Well, it is hard to tell, I think doing research I have 70% skills, but when I compare my skills I am enhancing day by day I am taking courses and learning; I got confidence, but it is due to my efforts, not just a confidence". M explained, "Well, I can say it is ok not too good, not too bad it is just ok my skills, and I need improvement."

Contradict to this argument, the other respondent K, mentioned the other issues regarding the support and research environment influence on research, "Defiantly No, I did not perform well, because when I compare myself at my MSMS level in two years, I was total changed due to academic environment and teaching styles and course contents, but here in China during my two-year stay I did not see any change in my academics and my research skills; the academic orientation and teaching style is not appropriate to handle the international students. They have traditional teaching styles that I do not get". Similarly, G argues that "there is room for improvement, and I can say I need improvement in myself to conduct the research. The long way to go it needs efforts and time".

One respondent E claimed the lack of research skill and his confusion to complete the degree requirement on time and how to deal with this situation, "I am worried how I am going to do publication I do not have any idea and sometimes I think it is not possible at all even I am trying, but I have no clue before so it is hard tough, and for me, communication with my supervisor is also a big challenge."

*5.2 Mastery Experience*

Our analysis has observed the diverse and distinct aims of international students in their doctoral degrees in Chinese Universities. The strong sense of efficacy and beliefs enhance the accomplishment chances, individuals with a strong sense of capabilities demonstrate to approach challenging tasks, and less consideration they pay to pressure (Lambie and Vaccaro, 2011; Lambie et al., 2014). Individuals in this drove set vital goals and maintain a solid commitment to achieving the outcomes. According to Zimmerman (2009) refereed Bandura (1986), 'self-efficacy is a context related judgment of personal ability to organize and execute a course of action to attain designated levels of performance'; therefore, these judgmental beliefs of doctoral students on their skills affect the goal selecting and their obligation to

these goals. While mentioning this phenomenon, respondent M brought, "Well, the master research I can say was basic that gives me the confidence of doing research, so I was aware of how to do and how to deal with it," and respondent A disclosed that, "Yeah. I can yes there is a connection… based on my experience, I can sense issue, I can easily read and understand the phenomena based on my research experience, and my work experience is also helping my research learning, and due to this confidence, I am here for Ph.D. and did two publications in international journals".

Moreover, the foremost encouragement to enter into a doctoral program for many doctoral students was their judgment of capabilities to perform rather than personal qualities; goal setting for their academics and career inspiration with the confidence in their skills and capabilities was due to mastery experience.

Respondent L discussed, "Well, my goal was to enhance my intellectual level and to enhance my skills; indeed, I am confident due to my previous research skills. I was able to handle the research projects, and I joined Ph.D. to enhance my research skills more…with the aim of to be good researcher, in my field to disseminate that information back with my country to empower my country through my research". Similarly, J pointed out that, "improving my educational status to enhance my intellectual skills more; that is why I took admission to enhance my skills." G also mentioned several motives for his doctoral studies, "as far as I want to be academic at the university level... and being researcher is the foremost important one, and mastery of my research skills helped me to come up with publications, and I won the awards too".

Moreover, preliminary research skills beliefs also influence their decision to step ahead to the academic journey and develop their research skills. While K explained how she set her goals and what was the core reason for it, "Yeah, I can say I was not a researcher, but after conducting my master research project and my two publications, I realize that how much it is important to help especially the education sector, and as a teacher, I got big jerk of change, and I decided to go for research besides my teaching practices and got enroll in Ph.D. to become a researcher. I can say, my previous experience was there to help me out while conducting a new research study and to take this decision".

Respondent D discussed the driving force for his Ph.D. "The lack of researchers in my field was a big reason for me to do a Ph.D., yeah my previous skills have increased the belief on my research skills, and that experience gave me the confidence to enrolled in a doctoral program..., without the previous research skills, I was not able to do a publication in my first year of Ph.D.". Contrary to D, K; E mentioned the lack of mastery research skills, he joined the Ph.D. program right after master program and without any prior professional experiences and his motive was to obtain the last degree, "I just started my Ph.D. program straightly. I never experienced any jobs…I am just interested in completing my study and getting a Ph.D. degree. Due to a lack of research experience, I am always trying to make an effort because I have to learn about conducting research…ah… I suffer because I do not have a research skill…it is not an enjoyable process… because I feel sorry not to be able to publish ...to do research is not easy for me".

Negating to these participants, few mentioned other obligations and reasons to join their academic career as researcher as respondent C said: My parents want me to do a Ph.D. and become a researcher other than that, I was not having any clear goal for my Ph.D.

Similarly, these respondents (B, F, H) also mentioned the same phenomena. Respondent B mentioned that " my master was the basic to decide me for my Ph.D. program"; F claimed, " I had an experience of researching master that gives me confidence that I can do it and I was sure about it"; H marked, " All I can say is due to my research at master I know it is difficult to conduct, but I know, so it is easy for me to go for Ph.D.'.

*5.3 Vicarious Experience (Peer Observation and Influence)*

According to Bandura (1986), "learning from others and plan alternative strategies, regulate one's behavior, and engage in self-reflection"; enhance self-efficacy of individual towards the task and facilitate them to reflect on their skills and knowledge. It depicts the attitude of staying persistent and catapulted towards their task; while mentioning the different models of vicarious experiences as doctoral students with peers' and their academic supervisor, the respondent mentioned their experience and how it influences their efficacy. As L stated, "Well…personally, no, their negative experience does not let me feel down; because I think it is personal. It did not de-motive me; even frustration is there, but I stop discussing their failures and share my positive experience to guide them to conduct successful research. Well, my supervisor guides me most, but often he gave me feedback…Well, I am open-minded, and I believe I have gained from his critical feedback". C declared, "Of course, I meet different fellows in my department…some of them are hard-working some of them are not…the hard-working ones made me feel motivated towards my research; even boost my energy for my work as like them; on the other side few are not performing good their coursework grades and research capabilities are low, but I do not feel discouraged to see them because they are

not trying to gain anything their objective is different. I always see the good picture that I can do it". D said, "Defiantly, some of my peers have serious difficulty in conducting the research, in my department, I experience both, well experienced and not experienced regarding research and in their academic performance…when I see them facing a challenge in research; I do not feel fear because I have confidence on research experience and capabilities. So I believe my research skills are strong than their discouraging impact".

Respondent H argued, "Yeah, I saw international peers having serious difficulty in their research especially I think due to different educational background they have a different level of research experiences, some I observed even have difficulty in basic skills, like analyzing data and interpreting the result…but I am growing my skills; when I look at them I got more motivated to work hard". Same as G stated, "For the good part if some of my peers doing well its motivated me and first I do not feel good when I see my peers not performing well, because I think they have to study more and exposed themselves to learning research skills I do not why they are not working and how they reached to this academic level with low skills and how they can be productive because most of them are not committed to do research or to learn research skills their objectives are not to study…Personal it does nothing to me whether they are performing well or not".

Bandura(1997) claimed that 'measuring success comparisons is a key way in which interpret the relative success or failure of our efforts'; while comparing with peers, M explained, "Yes, their skills and abilities influence my motivation, when I see them working doing publication attending the conference and struggling hard to get a good outcome, it boost my courage too, to do more good and when I see few of them having challenge and suffering due to lack of academic skills and capabilities then I reflect my skills if the answers are yes then I feel good but if the answer is not then I try to learn that skills which make them suffer to make my research path easy. Well, supervisor feedback on research and as students and I know I have to learn more for good work. I believe it's possible with the effective feedback and appreciation from my supervisor; on the other hand, I take critical feedback as blessings that leads me to improvement and progress" One respondent A, concluded, "I feel bad for them nothing else impacts my motivations because their objectives are not to do research they are here for some other reasons, so it did not concern me." K described contrary to others the Influence of peers on her self-efficacy and argued, "Yeah…I can say low ability peers have an impact on my motivation because when I see them with soft skills and weak academics as my competitor, I feel terrible. I got the same degree as them, which is a significant discouragement for me; on the other hand, I can say the low level of my degree. Does this question mostly emerge that I am working with them what will be the outcome? But…?

Moreover, I think the supervisor is immense support in the Ph.D. thesis, but this part lacks the Chinese context, and I also find it missing. If I compare it with another world, it's changed. And I can say it's difficult for international students".

Despite this, Bandura (1997 p.88) described that for enhancing self-efficacy, the vicarious experiences are compelling and lack of these skills leads to lack of self-efficacy. However, F explained that "Ah, regarding my peers, I feel sorry for those who had fewer skills and having academic challenges, but it does not influence me in a bad way. I always learned to obverse with others when I see their issues. I reflect on myself and work hard to avoid that situation, but I want to say one thing they do not want to learn; otherwise, the chances are equal for everyone, and their goals are different. There are here for other benefits. Truly, I survived due to my supervisor's support and help; otherwise, I could not stay in China. He supported me in academics and as well as in my matters too"; While J stated, "Concerning my research mostly I got comments from my supervisor but mostly due to language barriers; we cannot communicate properly then; I took help from peers …and I got good suggestions, concerning the comments about my research; positive or negative for me they are effective feedback to help me to improve the research skills I am optimist person in this matter…positive comments I also got then, I feel happier, more relaxed to conduct good research".

*5.4 Verbal and Social Persuasion*

Bandura (1986), while defining the different sources of self-efficacy, explained verbal persuasion and feedback from the supervisors and peers as the main factor that can speedily increase and decrease students' self-efficacy. Verbal Influence in the appraisal of research work and academic activities the Imran elaborates that, "My supervisor as I mentioned before helped me a lot in my academics and especially in my research tasks when I was collecting data it was difficult for me, but he did not let me suffered alone he gave me Chinese students who can access the data, and whenever I need help. He was ready to help me…regarding feedback when he praised my work then I want to publish more and more haha". Similarly, the respondents shared their encouraging and discouraging experiences with supervisors and peers; as L explained, "My supervisor is a critical one, but I am happy. I am learning from her experience and skills; it helps me to reflect on my errors and give me a chance to improve my wholes… while the

senior peers, when in literary saloon ns they critic my research, I got several ideas and suggestions but sometimes, few peers like to humiliate that is discouraging". Respondents were competent to compare, reflect and understand themselves and can measure their research success with other international peers; likewise, H explained that "My supervisor mold me through his effective feedback and support I can claim that, with his encouragement I have attended many international conferences and presented my papers, he appreciated the work that gave me lots of confidence… academically I have only one peer I like to hear from him because he has a critical mind which helps me to reflect and fewer chances of errors".

Respondent K and E described their navigate experiences," My supervisor is a very busy academic member of the faculty and mostly when I shared my work with him, no feedback that is very disturbing because I can reflect my work critically the way my supervisor can do; it is a big challenge for me to work by myself without any cooperation from the supervisor side, then I try to cooperate with my peers who had the reflective views they helped me and encourage me otherwise I think it was challenging for me to complete my doctoral degree," E said, "I can say well that feedback is more effective when it is from the supervisors said whether critical or positive. However, I am not lucky enough; my supervisor does not like to give any feedback, so it is a horrible feeling when I get ignored without any reason. Yeah, then friends helped me, and I try to improve, but still, it is complicated for me".

*5.5 Affective States (Complex Undertaking and Research Beliefs)*

Bandura (1997) defined self-efficacy as 'guideline' and 'development of human efficacy'; furthermore, the theory explains that the psychosocial states affect the individual's efficacy beliefs; 'Affective states can have widely generalized effects on personal (Bandura, 2009 p.5). The respondent reported their research challenges and their effective abilities to get different alternates to enhance their research skills. They mentioned the diverse challenges they encountered while conducting their research led participants to plan accordingly. The complex undertaking of the research process and challenges, as L said, "Yeah, challenges are there, it is especially for conducting the experimental research in Chinese university like looking for a subject and getting funds as international students. Sometimes it does not support you fully from the college, but still, I try to conduct these to get the knowledge and discernment it to my country. Conducting research needs more and more stamina. It needs personal courage because the Chinese sometimes see the phenomena according to their culture, not according to our international students' needs. Well, how I face the challenges is on my open-minded towards the research and my aim". While B mentioned, "Challenges I faced regarding the literature finding most of the literature and books are here are in Chinese, so it was complicated for me to get literature and support also because language is an issue…I am the person who does not like to criticize the system, so most of the time I keep finding the way to write my proposal and write on my own and look for another way to get the data regarding my topic".

Similarly, K described, "Challenges are there like lack of professor communication skills because they cannot understand English and cannot explain us the context, it was a big challenge for me during my coursework, and it also impacts my research." While A stressed, "The challenge I have concerning my research is the distance from my country, and it causes hinderers' in my research to conduct more research because in China few international social media are accessible. So I cannot access my country data sides …So far, I find the way to work with my friends who has the data, and we did seven publications". As F also mentioned data collection challenges, "Mostly I faced the data collection and analysis process I think is challenging in Chinese universities but writing and publishing, I did not face any problem." C discussed some physiological challenges: "Many things were there in my way to research or two most challenges that I encounter were the isolation that was a big one for me. Mostly I conduct my research alone its makes me sometimes Ahhhh alone, and secondly, time management an issue for me because when I start to study, I want to read more and more, so I find time is an issue for me".

Two respondents G and H, mentioned the academic concern, "Mostly, the big challenge is the analyzing data, and I feel difficulty to do, and I am working to improve my skills, but I think SPSS is a bit difficult and complex for me, and for that, I have to seek the help from peers and an online reading and courses." G: "Actually, in the quantitative analysis, I have difficulty, and usually, it gives me a difficult time, and I have basic SPSS skills, but I am not ok I have to enhance them to produce better research...Sometimes I think I have an issue for literature".

As E indicated, "Lack of research background and the language barrier is the challenges I face in my Ph.D. program….I felt that if I had research skills…..it would be much easier for me to write papers …It is not that easy when you start doing something without having a pre-knowledge to rely on… I face these challenges, but I am trying to attain my objective". D also mentioned the language, "Communication skills are challenging for me. My supervisor can speak English properly, but I cannot speak English. My advisor often explains some suggestions, but I presented something else because of the communication problem when I come to the present. My colleagues helped me in

translation and my writing. Besides the communication problem, I do not have any other issues concerning research skills".

## 6. Discussion

Our study explored international Doctoral students in Chinese universities, their confidence, and certainty in their research self-efficacy. Consequently, Bandura's self-efficacy concept guided our study to perceive comprehensive understanding regarding doctoral student research skill development from defined four sources of research self-efficacy discussed earlier (Bandura,1986, 1997). All participants indicated that they are on CSC scholarship full grant, and they acknowledge that its financial package was the driving force for these students to study in China (Larbi and Fu, 2017; Latief and Lefen, 2018; Hussain & Shen, 2019; Ding, 2016). Their interview disclosed several research-related factors and experiences they encounter while pursuing their academic research at the doctoral level. Our finding indicates that self-confidence is one element that gave them the confidence to take the doctoral research challenge to prove their worth as academic researchers and growth in their research skills. In line with previous studies, our findings presented that doctoral are adults with professional experiences perpetrated to have self-confidence, growth, and courage to face the complex challenges that mold experiences (Love et al., 2007; Holbrook et al., 2014).

Moreover, the study's finding indicated that international doctoral students' previous professional and research experience was a significant agent in building a robust research self-efficacy and solid confidence to take distinct research challenges with a mature way of facing them. Likewise, in line with previous literature, our study confirmed that international students with decent mastery of research skills experience more confidence during research tasks or activities (Love et al., 2007; Cobb et al., 2020). These evidence result anxiety and stress among international doctoral student who had no previous research experience due to their corresponding country educational system (Forester et al., 2004; Maschi et al., 2013; Hussain & Shen, 2019; Kakupa and Xue, 2019; Cobb et al., 2020). Nonetheless, those who even did a research thesis to fulfill bachelor's and master's degrees were motivated and engaged in different research activities with their supervisors and independently. Similarly, Bandura mentioned emotional status and self-efficacy (Bandura,1986, 1997), by the same token; our study noted that international students' psychological strengths in dealing with research related challenges at Chinese university where cheering, even if they have a lot to do and know to boost their research skill but they are motivated and persistent towards their goals and open-minded technique to overcome these challenges (Nazari et al., 2020), and for that, supervisor supportive has a significant role in promoting research creativity and innovation among international student (Fan et al. 2018); the finding demonstrates following earlier studies that international supervisors are shown valuable and crucial for doctoral students research skill and knowledge development. (Wang and Byram, 2018; Fan et al., 2018).

Beyond, the finding illustrates that international doctoral students have the urge to foster their research skill since once they obtain the doctoral degree, they have a responsibility to be engaged in a research environment (Park, 2005; Love et al., 2007; Overall et al., 2011; Stadtlander et al., 2020). Hence, an international doctoral student who studies in China before has shown a very technical and systematic way to get along quickly with their professors, access any research materials, laboratories, and acquire superb research-related outcomes. On the contrary, the rest students who are new to Chinese higher institutions could not surpass the related research challenges, but due to language and communication hindrance with supervisor and low research environment for an international student, they could not achieve what has set (Ma and Zhoa, 2018; Hussain & Shen, 2019; Jiang et al., 2020). However, the evidence illuminates that not only Chinese professors who lack English language (Sawir et al.,2012; Wen et al., 2018; Latief and Lefen, 2018; Hussain & Shen, 2019; Jiang et al., 2020), but international students confirmed that they are incompetent in English or Chinese language. These surprising findings explain the illogical and irrational admission requirement of Chinese universities (Wen et al., 2018; Ma and Zhao, 2018; Gao, 2019; Ding, 2020; Jiang et al., 2020) and international students came to China take financial and another advantage by being there (Ma and Zhoa, 2018). Further, the finding disclosed identical evidence with (Sawair, 2012; Larbi and Fu, 2017; Byram, 2018; Ma and Zhao, 2018; Hussain & Shen, 2019) that the Lack of English material (offline, online, print) creates the concern for faculties' and graduate students.

According to Bandura, the other means to develop once efficacy is by observing peers or colleagues. In our study situation, our participants stated that observing their peers in research-related tasks (writing a thesis, publishing research/ presenting on conferences) made them be motivational and encouraged. However, our study result somehow negates Bandura's self-efficacy theory that peer /college failure in a given task influence one's self-efficacy negatively (Bandura,1986, 1997).

## 7. Conclusion

In turn, the study concluded that the primary rationale of international students pursuing their doctoral degree was to obtain stable and decent financial support from the Chinese government with an easy selection process and requirements than for a genuine educational purpose. On the other hand, we have found a few doctoral students who came to Chinese universities with a decent aim to develop their academic and research skill. Most of this student got early research degree from Chinese universities had a better chance of enhancing their research self-efficacy since they have easy access to the research environment, which shows higher education inequality among international students in Chinese universities. Our interview also concluded that most doctoral international students had not shown the anticipated research self-efficacy from a doctoral student who spent three years in the program.

The study shed light on early research experience as the core channels that develop students' research self-efficacy. Owning to that, international doctoral students who had early research skills experience were more confident and were able to take more challenges. In contrast, an unqualified doctoral student who never has research experience is incompetent in taking over research-related tasks and working with peers and supervisors.

### 7.1 Implication and Direction for Future Study

Our study has significant implications for higher institutions worldwide striving to promote internationalization so that international students can foster their academic and research potentials without an intended obstacle. The finding is sufficient to add evidence for the Chinese government to review the admission policies and coordinate with many international students to provide them better research facilities to uplift and set standards for their research. The Chinese government scholarship has to be a multilateral relationship between China and friendly countries and international student exposure to a quality higher education for better learning and research environment not only for the scholarship package.

Hence, our implications for the Chinese government and policymakers and scholarship program administration at Chinese universities to create a rigorous admission procedure and inclusive academic and research environment for international students. So, the Chinese higher education sector has to formulate policies for scholarship admissions and set more standards to set international standards. Secondly, university administrations need to provide better access to campus-based facilities for international students such as an English digital library (with the latest database access for doctoral students) and equal access to scientific research labs, and to establish regular bodies to manage and organize conferences, seminars, and workshops for international students to provide them with the professional development opportunities for academic research. Thirdly, for international doctoral students to establish the goal for doctoral studies, they have to pay more consideration to their academic rather than other activities that impact their research; and their athletic, academic goals need persistence to develop their research skills.

Finally, the research reported here is based on a small scale qualitative study with twelve international doctoral students' research self-efficacy experience from one Chinese university; hence our findings may not be generalized beyond the context, may become a base for large-scale quantitative studies for greater generalization of doctoral students' research self-efficacy.

### Disclosure Statement

The authors reported no potential conflict of interest.

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