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## From Words to Research: Examining the Role of Language Competencies in Shaping Attitudes Towards Doing Research Projects

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**Abstract:** *The study examines the impact of language competencies on attitudes towards doing research projects. Specifically, the study focuses on the impact of first-language competence (Urdu), second-language competence (English), code-switching competence, and bilingual competence on attitudes towards doing research projects among undergraduate students. Employing convenience sampling, a sample of 500 undergraduate students from various disciplines at two public sector universities in Pakistan was selected. The data were collected through a well-structured questionnaire with questions related to language competencies and attitudes towards doing research projects. The hypotheses were tested using SmartPLS-4. The results revealed that first language competence, English language competence, code-switching competence, and bilingual competence have a significant and positive impact on attitudes towards doing research projects. The findings suggest that language competencies play an important role in shaping students' attitudes towards doing research projects. The study emphasizes the significance of students' language competence in developing positive attitudes towards doing research projects. Practical implications for educators, researchers, and policymakers are also discussed.*

**Key Words:** English Competence, Code-switching Competence, Bilingual Competence, Attitudes towards doing Research Projects, Undergraduate Students

### Introduction

Research projects are vital components of academic, educational, and professional fields (Redden, 2023). Individuals are required to perform research activities related to research projects, such as the construction of research tools, data collection, statistical analyses, and report writing (Evis, 2021). Attitudes towards doing research projects play a very crucial role in the completion of these research projects. The motivation required to complete each component of these research projects is directly related to attitudes towards doing research projects (Vossen, Henze, Rippe, Van Driel, & De Vries, 2018). There are a host of factors that can affect the attitudes of students towards doing research projects, such as the quality of instructions, research seminars, training, competence of research teachers, linguistic competencies, and design of research courses. In recent years, one set of factors that have gained scholarly attention is language competencies (San & Guo, 2022; Zhou, Xi, & Lochman, 2023). A crucial ability for success in doing research projects has been emphasized as the capacity to communicate well across contexts and languages (Valizadeh & Gunday, 2022). It is still unclear, nevertheless, exactly how linguistic, code-switching, and bilingual competencies affect attitudes towards doing research projects (Siemens, Punnen, Wong, & Kanji, 2010; Vossen, Henze, Rippe, Van Driel, & De Vries, 2021). Hence, the present study intends to fill this important gap in the literature by investigating the impact of competencies in first (Urdu), second language (English), code-switching, and bilingual competencies on attitudes towards doing research projects among university students.

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This study contributes to the existing literature on lingual factors affecting attitudes towards doing research projects in several ways. First, it aims to investigate the impact of various competencies (Urdu competence, English competence, code-switching competence, bilingual competence) on attitudes towards doing research projects. However, prior studies (Ansar, 2017; Bashir & ur Rehman, 2020; Fachriyah, 2017) in this line have investigated the impact of code-switching and lingual competencies on preference for doing research projects but have not used proposed competencies in a single integrated model to assess their impact on attitudes towards doing research projects. Hence, the study ascertains the impact of proposed integrated competencies on attitudes towards doing research projects. Second, studies have used various competencies to assess their impact on traditional educational outcomes like GCPA, but to our knowledge, there is little to no research that specifically ascertains the impact of proposed competencies on attitudes towards doing research projects (Korpershoek, Canrinus, Fokkens-Bruinsma, & de Boer, 2020; Lehl et al., 2020). Thus, the study distinguishes itself by specifically exploring the impact of proposed competencies on attitudes towards doing research projects. Third. To the best of our knowledge, there is no empirical study that examined the impact of identified competencies on attitudes towards doing research projects in the context of Higher Education Institutes. Consequently, the study contributes to lingual competencies literature in the context of HEIs. Last, the majority of the studies in the area of lingual competencies and their implications for research have chosen attitudes towards research as a dependent variable (Siemens et al., 2010; Vodopivec et al., 2002; Vossen et al., 2021). Attitudes towards research measure the general attitudes of students towards the importance and value of research. It also includes broader attitudes towards taking part in research as a participant. However, the present study contributes to the literature by examining attitudes towards doing research projects that specifically investigate attitudes towards conducting research. It includes the entire process of designing and conducting research, such as the research topic, objectives, hypotheses, data collection, statistical analyses, and report writing.

## Literature Review and Hypotheses Development

According to Wilson (2020), the ability to speak clearly in the language of instruction or the language being used in the research project is referred to as language competency. It has shown in studies that language competencies in a first and second language are linked with positive attitudes towards doing research projects (Bohman, Bedore, Peña, Mendez-Perez, & Gillam, 2010; Shaw, Lyon, Stoddart, Mosqueda, & Menon, 2014; Surrain, 2021). For example, Ngarsou (2022) found that students who are more proficient in the first language, which is instructional language, at HEIs are more likely to have positive attitudes towards doing research. Similarly, it has been found that students who have more lingual competency in their first language are likely to have positive attitudes towards doing research projects (Ashraf, 2023). Previous studies have found that the ability to communicate in one's native tongue can have a positive impact on attitudes towards doing research projects (Ngarsou, 2022; Vodopivec et al., 2002). Proficiency in Urdu also gives students confidence, which leads to positive attitudes towards doing research projects (Asif et al., 2022). Urdu competencies have a significant positive effect on attitudes towards research. However, the precise impact of first language competencies on attitudes towards doing research projects is still unclear (Ngarsou, 2022; Zhou et al., 2023). Hence, it is proposed that

**H1:** Urdu competence has a significant positive impact on attitudes towards research projects.

Previous studies have consistently shown that English competence has a significant positive impact on student's attitudes towards doing research projects. As noted by Sotvoldievich (2022), English competence has a significant positive effect on attitudes towards doing research projects. This finding was also supported by Kanwal, Hussain, and Farid (2022), who noted that students with higher levels of English competence were more likely to have positive attitudes towards doing research projects. Similarly, Bashir and Ur Rehman (2020) found in their study that English competence was strongly correlated with attitudes towards doing research.

Furthermore, recent research has also confirmed the significant positive impact of English competence on attitudes towards doing research. For example, Ashraf (2023) found a positive and strong correlation between English competence and attitudes towards doing research projects. Likewise, Surrain (2021) reported that English competence positively affected attitudes towards doing research projects. Other

studies have also highlighted the importance of English competence in the context of research activities (Airey, 2020; Bashir & ur Rehman, 2020; Fachriyah, 2017; Surrain, 2021). Thus, it is hypothesized:

**H2:** English competence has a significant positive impact on attitudes towards research projects.

Code-switching, which refers to the use of two languages simultaneously in speaking and listening by both instructors and students in classrooms, is positively correlated with attitudes towards doing research projects (Ansar, 2017).

Several studies have investigated the impact of code-switching on educational and research outcomes (Abdullstar Sadiq, 2022; Alang & Idris, 2018; Alkhudair, 2019; Almelhi, 2020; Green, 2018; Jan-Petter & Gumperz, 2020; López, 2017; Luo et al., 2018). Panhwar (2018) examined the role of code-switching in academic writing in graduate students. They found that code-switching positively impacts attitudes towards doing research projects. Likewise, a study conducted by Irfan, Butt, and Rizwan (2022) in Pakistani higher education classrooms found that code-switching positively affects students' attitudes towards learning and educational performance.

There are studies that, on the other hand, found no conclusive link between code-switching and attitudes towards conducting research projects. Nawaz, Atta, and Naseem (2023) found that code-switching in learning and teaching a second language had no significant effect on attitudes towards doing research projects. Similarly, code-switching in EFL classrooms did not have a significant impact on attitudes towards doing research projects (Abdullstar Sadiq, 2022).

Despite the contradictory results, code-switching may have a positive influence on attitudes towards doing research projects. Thus, we hypothesize that a higher level of code-switching competence in students will have a significantly positive impact on attitudes towards doing research projects.

**H3:** There is a significantly positive impact of code-switching competence on attitudes towards research projects.

The term "bilingual competencies" describes a person's capacity to interact effectively in two or more languages (Hamers, Blanc, Blanc, & Hamers, 2000). A thick body of research has found that bilingual students have been found to have more supportive attitudes towards doing research projects when compared with monolingual students (Abduh & Rosmaladewi, 2018; Alfaro, 2018; Beatty-Martínez & Dussias, 2017; Bohman et al., 2010; Devonish & Carpenter, 2007; Fernández & Julius, 2017; Granados Beltrán, 2013). A set of reasons behind this find is that bilingual students are better equipped to understand and engage in research projects in both languages (Ramiro & Pérez, 2018; Rubio-Alcalá et al., 2019; Sharon, Liu & de Bruin, 2021). Additionally, they effectively interact with individuals from different backgrounds and can present their research findings to diverse audiences. They have a greater ability to access and analyze research material in different languages, which can increase the scope and validity of their research work (Airey, 2020; Ashraf, 2023; Surrain, 2021). Bilingual competence is also correlated with rapport building with researchers from different backgrounds, and this can enhance the quality of their research. In areas like public health or international development, where research findings must be disseminated to a wide range of stakeholders, this might be especially crucial (Aslam, Qayyum, Mahmud, Qasim, & Haque, 2004; Hren et al., 2004; Khan, Khawaja, Waheed, Rauf, & Fatmi, 2006; Page et al., 2003; Siemens et al., 2010).

While there is evidence to support the notion that bilingual competence can positively influence attitudes towards doing research projects, it is critical to keep in mind that the relationship between these variables is likely to be nuanced and context-dependent (Chen, He, & Fan, 2022; Edmon & Hema, 2022; Kanwal et al., 2022). More empirical research is needed to fully understand the impact of bilingual competence on attitudes towards doing research projects (Valizadeh & Gunday, 2022). Hence, we hypothesize that bilingual competence positively impacts attitudes towards doing research projects. Specifically, we expect that students with a higher level of bilingual competence will also have significant positive attitudes towards doing research projects. Consequently, it is proposed that:

**H4:** There is a significant positive impact of bilingual competence on attitudes towards research projects.



## Data and Methods

### Sample

The study utilized a convenience sampling technique. The study sample comprised university undergraduate students. The survey instructions were provided before respondents could access the study tool. They include that participation was voluntary, replies were kept anonymous, and there were no consequences for declining to participate. Data were collected from May 2019 to August 2019 through personal visits and online questionnaire distribution via social media networks (Facebook and, WhatsApp, etc.). Data were collected from two large public sector universities in Punjab province. 750 questionnaires were distributed to get a representative sample from public sector universities. Five hundred thirty-five questionnaires were returned (response rate = 71 %). 35 questionnaires were not filled and had many missing values. So, these questionnaires were not considered. Finally, 500 questionnaires were found complete and usable.

In PLS-SEM, it is recommended that the sample size should be ten times the number of arrows pointing at a variable (Hair, Black, Babin, & Anderson, 2010). In the present study, the total number of arrows pointing towards variables was four. Hence, the requirement for representativeness would be 40 valid surveys. But in the present study, the sample size is well above the recommended guideline.

The questionnaire comprised two parts. In the first part, demographic information was asked, including semester, study programme, gender, faculty, and age. In the second part, items for measuring Urdu, English, code-switching, bilingual competencies, and attitudes towards doing research projects were included.

## Measures

### Dependent Variable

The dependent variable is attitudes towards doing research projects. Respondents were asked to rate their level of agreement with the following statements on a five-point Likert scale, from "Not at all" to "to a great extent," to gauge attitudes regarding the research project: 1) Are you interested in conducting this research after your degree? 2) Do you believe that conducting this research can improve your writing skills? 3) Do you believe that conducting thesis research can increase the value of your degree? 4) Do you believe that a thesis is worthwhile to conduct despite a low CGPA? 5) Do you believe that a thesis provides an additional skill that you should not miss at any cost? Higher scores on the items correspond to higher degrees of preference for carrying out a research project, according to the item coding. (Alpha = .750). The scale is confirmed to be one-dimensional by factor analysis, which revealed that all five items created a single factor (eigenvalue = 2.607, loadings ranged from 0.576 to 0.769).

### Independent Variables

The independent variables measure Urdu, English, code-switching, and bilingual competencies. All dependent variables were measured on the Likert scale. Response categories ranged from 1= not at all to 4= great extent. Competence in Urdu was measured by the following statements. 1) To what extent do you feel you have the ability to write a complete sentence in Urdu, 2) To what extent do you have the ability to write a proper paragraph in Urdu? 3) To what extent do you have the ability to use correct words and spelling in Urdu? 4) To what extent do you feel writing in Urdu is difficult for you because you lack vocabulary in Urdu? Further, factor analysis illustrates that all nine items load onto a single factor (eigenvalue = 5.026, loadings ranging from .752 to .870). Alpha value was .832. Competence in English was gauged by the following statements. 1) To what extent do you feel you have the ability to write a complete sentence in English? 2) To what extent do you have the ability to write a proper paragraph in English? 3) To what extent do you have the ability to use correct words and spelling in English... Further, factor analysis illustrates that all 9 items load onto a single factor (eigenvalue = 5.016, loadings ranging from .732 to .871). The alpha value was .856.

Code-switching competence was measured using the following items. 1) To what extent do you have the ability to use correct words and spellings in English if the lectures were in two languages, 2) To what extent do you feel you lack vocabulary in English because lectures were delivered in two languages, 3) To

what extent do you feel you can logically support and develop your main ideas in English as an effect of two language education system. Additionally, factor analysis shows that there is just one factor onto which all eight items are loaded (eigenvalue = 5.046, loadings ranging from 732 to 860). Alpha was worth.758. Finally, the following items are used to gauge multilingual code-switching. 1) I tend to produce words in Urdu when I cannot recollect them in English; 2) I tend to produce words in English when I cannot recall them in Urdu; and 3) there are some topics or concerns for which I typically switch(interchange) between the two languages. Additionally, factor analysis shows that all nine elements (eigenvalue = 5.037, loadings ranging from 732 to 880) load into a single factor. Alpha had a value of.780.

SmartPLS 4 is a user-friendly SEM software that uses the Partial Least Squares (PLS) technique for exploratory research (Ringle, Christian M., Wende, Sven, & Becker, Jan-Michael, 2022). It is adaptable and can be used in various research situations with reflective and formative measuring approaches. However, it may have fewer features and sophisticated functionalities compared to other SEM software and may not be well-established in some academic subjects. To test the research hypotheses of the study, we used a cross-sectional survey. The study applied the Multiple Linear Regression technique using Smart PLS 4. Multiple regression is a well-established statistical technique that is widely used in social sciences to estimate complex cause-effect relationship models (Basco, Hair Jr, Ringle, & Sarstedt, 2022).

## Results and Discussions

Table 1 presents the frequency distribution, percentage of background variables and means and standard deviation of study variables.

**Table 1**

*Descriptive statistics for study variables*

<b>Categorical variables</b>	<b>f</b>	<b>%</b>
<b>Semester</b>		
BS 4 <sup>th</sup>	130	26
BS 6 <sup>th</sup>	176	35.2
MA	110	22
MA 4 <sup>th</sup>	84	16.8
<b>Programme</b>		
BS	246	49.2
MA	197	39.4
M.Phil	57	11.4
<b>Faculty</b>		
Social sciences	200	40
Art and Humanities	124	24.8
Natural Sciences	176	35.2
<b>Gender</b>		
Male	208	41.6
Female	292	58.4
<b>Continuous variables</b>	<b>Mean</b>	<b>SD</b>
Age	23.2	3.13232
Competence in Urdu	26.90	5.35793
Competence in English	22.98	4.60848
Situational Competence	22.06	4.20869
Bilingual Competence	24.15	4.60296
Attitudes toward research projects	14.26	3.37421

The final sample demographics consisted of 208 males (41.6%), 292 females (58.4%), 130 BS 4<sup>th</sup> (26%), 176 BS 6<sup>th</sup> (35%), MAI 110 (22%), and MA IV 84 (16.8 %). Additionally, the sample reveals that 124 respondents (24.5%) were from the Arts and Humanities faculty, 200 respondents (40%) from the Natural



Sciences faculty, and 106 respondents (35%) from the Social Sciences faculty. And the majority of the respondents of the sample were enrolled in the BS programme (49.2%). The mean age was 20.3 years old.

**Table 2**  
Bivariate correlations for study variables

Variables	UC	EC	CC	BC	AT
UC	1				
EC	.517**	1			
CC	.547**	.681**	1		
BC	.217**	.235**	.336**	1	
AT	.477**	.355**	.400**	.180**	1

Note:  $p^{**} < .05$ , UC: Urdu Competence, EC: English Competence, CC: Code-switching Competence, BC: Bilingual Competence, AT: Attitude Towards doing research projects

Table 2 displays the correlation of variables included in the current analysis. All four variables are positively correlated with attitudes towards doing research projects, including Urdu competence ( $r = .477, p < .05$ ), English competence ( $r = .355, p < .05$ ), code-switching competence ( $r = .400, p < .05$ ) and bilingualism competence ( $r = .180, p < .05$ ). Simply put, Urdu, English, code-switching, and bilingual competences are positively correlated with attitudes towards doing research projects.

**Table 3**  
Regression of attitudes towards doing research projects on study predictors

Hypotheses	Regression Weights	B	t	P value	Results
H1	UC → AT	.224	7.455	.000	Supported
H2	EC → AT	.142	1.058	.001	Supported
H3	CC → AT	.123	2.691	.000	Supported
H4	BC → AT	.228	.928	.000	Supported
R <sup>2</sup>	.458				
F(4, 495)	43.054				

Note: UC: Urdu Competence, EC: English Competence, CC: Code-switching Competence, BC: Bilingual Competence, AT: Attitude Towards doing research projects

Table 3 shows the results of the multiple regression analysis. The dependent variable (attitudes towards doing research projects) was regressed on predicting variables of Urdu competence, English competence, code-switching competence, and bilingual competence. The independent variables significantly predict attitudes towards doing research projects,  $F(4, 495) = 43.54, p < .001$ , which indicates that four variables under study have a significant impact on attitudes towards doing research projects. Moreover,  $R^2 = .451$  which depicts that the model explains 45% of the variance in attitudes towards doing research projects.

Additionally, coefficients were further assessed to ascertain the impact of each of the factors on the criterion variable (attitudes towards doing research projects).

**H1:** Urdu competence has a significantly positive impact on attitudes towards a research project.

H1 evaluates whether Urdu competence significantly and positively affects attitudes towards the research project. The results reveal that Urdu competence has a significant and positive impact on attitudes towards research projects ( $B = .224, t = 7.455, p < .001$ ). Hence H1 is supported.

This result is in line with several other studies examining the role of the first language in shaping perceptions towards doing a research project. For instance, Ashraf (2023) and Asif et al. (2022) also found an effect of the first language on attitudes towards research activities. Furthermore, prior studies on the impact of first language on attitudes towards doing research projects also confirm H1 (Edmon & Hema, 2022; Fernández & Julius, 2017; García & Wei, 2014). Hence, the results reinforce the significance of the first language in the research process because it can significantly influence students' attitudes towards doing research projects.

**H2:** There is a significant positive impact of English Competence on attitudes toward research projects.

H2 evaluates whether English competence significantly and positively affects attitudes towards the research project. The results show that English competence has a significant and positive impact on attitudes towards research projects ( $B = .142$ ,  $t = 1.058$ ,  $p < .001$ ). Hence H1 is supported.

This finding is also consistent with previous studies on the role of the English language in shaping the perceptions of students toward doing research projects (Garcia, [2022](#); Kanwal et al., [2022](#); Sarwat & Qadir, [2022](#)). The effect of English competence on attitudes towards doing research projects is also corroborated by (Kanwal et al., [2022](#); Nawaz et al., [2023](#)). Following the present results, previous studies have demonstrated that competence in English as a foreign language and attitudes towards doing research projects correlate (Abdullsttar Sadiq, [2022](#); Irfan et al., [2022](#); Iswandari & Ardi, [2022](#)). Likewise, these results are consistent with those of Irfan et al. ([2022](#)), who found that English competence significantly affects attitudes towards doing research projects. Similarly, these results also corroborate the ideas of Sotvoldievich ([2022](#)), who suggested that English competence has a significantly positive impact on attitudes towards doing research projects, supporting the present study's H2.

**H3:** there is a significantly positive impact of code-switching competence on attitudes toward research projects.

H3 evaluates whether code-switching competence significantly and positively affects attitudes towards research projects. The results show that code-switching competence has a significant and positive impact on attitudes towards research projects ( $B = .123$ ,  $t = 2.691$ ,  $p < .001$ ). Hence, H3 is supported.

Several prior studies have consistently noted the importance of code-switching competence in shaping attitudes towards doing research projects (Bukhari, Shahzad, & Ali, [2022](#); Irfan et al., [2022](#); Sarwat & Qadir, [2022](#)). Moreover, code-switching competence has a positive impact on various educational and research-related outcomes, particularly in attitudes toward research projects (Alang & Idris, [2018](#)). Additionally, Alkhudair ([2019](#)) also researched code-switching competence and attitudes towards doing a research project, and his findings suggest a significantly positive impact of code-switching competence on attitudes towards doing a research project. Therefore, H3 is also approved in light of findings from previous studies.

**H4:** There is a significantly positive impact of bilingual competence on attitudes toward research projects.

H4 evaluates whether bilingual competence significantly and positively affects attitudes towards research projects. The results show that bilingual competence has a significant and positive impact on attitudes towards research projects ( $B = .228$ ,  $t = .928$ ,  $p < .001$ ). Hence, H4 is supported.

Consistent with prior research, bilingual competence positively affects attitudes toward doing a research project (Kanwal et al., [2022](#); Si, Hodges, & Coleman, [2022](#)). Other studies have also assessed the impact of bilingual competence on attitudes towards doing research projects and have found similar results (Heineke, Smetana, & Carlson Sanei, [2019](#); Melo-Pfeifer, [2015](#); Ramiro & Pérez, [2018](#); Rubio-Alcalá et al., [2019](#); Shiron et al., [2021](#)). Bilingual competence affects educational outcomes (Chen et al., [2022](#)). Bilingual competence has a significant positive impact on grades in research courses (Alfaro, [2018](#); Amin et al., [2012](#)). Similarly, Abduh and Rosmaladewi ([2018](#)) also found that bilingualism competence positively affects attitudes towards doing research projects even after controlling intervening variables. Consequently, H4 is supported.

## Implications

This study has practical ramifications for educators, researchers, and policymakers. The results of this study can be used by educators to design research projects that consider the language competence of their students. For instance, teachers could offer additional assistance to students who might have trouble with particular linguistic skills. Additionally, the results of this study can also be used by researchers to gain a better understanding of the language variables that affect attitudes towards research projects. Consequently, this could lead to the creation of more effective research methods and techniques. Finally,



policymakers may consider investment in language support programs to promote positive attitudes of students towards doing research projects.

### Limitations and Future lines of research

Despite the contributions, the study has some limitations. First, the study sample was made up entirely of Pakistani university students, which may have limited the study's capacity to generalize its findings to other populations. Future research needs to be done in various populations to assess how generalizable the results are. Second, the survey did not assess actual research behaviour; it simply looked at attitudes towards research projects. Future studies should look at how these competencies affect real research behaviour instead of only examining attitudes towards doing research projects. Third, the study used self-report measures. They could be biased by responses. Future studies should use a variety of methods to evaluate language competence, which may include performance-based methods such as standardized language proficiency tests. Fourth, the present study did not use any moderating variable that may moderate the impact of language competencies on attitudes towards doing research projects. Future research could ascertain the moderating or mediating effects of prior research training and academic background on attitudes towards doing research projects.

### Conclusion

To conclude, the present study provides important insights into the impact of language competencies on attitudes towards doing research projects. The results imply that language skills, including those in Urdu, English, code-switching, and bilingualism, have a substantial influence on attitudes towards conducting research projects. These findings have significant policy, research, and educational ramifications. The results underscore the need for language competence development and improvement to assist students who encounter language-related difficulties.

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