



ORIGINAL CONTRIBUTION

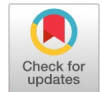
## Principal Leadership on Student Achievement in India

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**Abstract**— The present study has been envisioned to explore how the leadership of the principal influenced students' achievement within the context of schools in India. Studies in developed countries have revealed that the leadership of principals has influenced students' achievement. On the other hand, in India, this type of study is scarce. And the details how the leadership of the principals influenced students' achievements are still unexplored. The present study has used a qualitative case study to better understand the phenomenon. To meet the objective of the study, the researchers have conducted in-depth interviews with school principals and teachers in five different schools in India. Likewise, students' progress report and minutes of meetings of parents, teachers, and school staff were requested for further analysis. The data derived from the data sources were triangulated. The results of the analysis of the transcription of the interviews have offered descriptions of how the leadership of the principal influenced students' achievements. The findings from the interviews with principals were validated by the senior teachers. First, the leadership of the principal influenced students' achievements through the curriculum. In schools, the principals are the ones who decide on the type or form of the curricular, co-curricular and extra-curricular programs that will be brought to students. Second, their leadership clarifies the focus of the delivery of instructions. The principals articulate the goals of teaching and learning in class. Third, the leadership of the principals provides support to teachers and ensures the delivery of quality educational services to the students. In schools where the leadership of the principal is felt the professional development of teachers and the achievements of students were the top priority. Lastly, the leadership of principals encourages parents' school involvement, which helps students to see the value of their achievements in schools.

**Index Terms**— Principal Leadership, Student Achievement, Classroom Instruction, Parental Involvement.



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### Introduction

#### *Background and motivation*

Education is vital to the society for its progress and development. Subsequently, eyes are now turned towards school leaders (e.g., principals) who are responsible for the delivery of quality instructions. Education research recognized the leadership of the principal in improving students' achievement (Jacolbia, 2016; Sylvester, 2017). The increasing public expectations for better students' achievements has catapulted the leadership of principals at the center of education research (DuFour & Marzano, 2011; Hallinger & Heck, 1998; Leithwood et al., 2004, 2008; Waters et al., 2003).

Studies showed that the leadership of the principals makes a difference in students' achievement (Leithwood et al., 2004). A wide range of recent literature provided evidence linking leadership and students' learning and presented what they call "the paths along which the influence of school leadership travels to improve teaching and learning" (Wahlstrom et al., 2010).

In India, however, there are no sufficient studies on the leadership of the principals and their influence on students' achievement. More of-

ten, principals were plainly viewed as school administrator and not as a lead teacher in schools (Saravanabhavan et al., 2016). Empirical studies on school principals and their influence on students' achievements are still limited in India (Saravanabhavan et al., 2016). Likewise, the analysis of the six surveys of Educational Research in India revealed that principal leadership had not been studied extensively. Until this recent year, the leadership of the principal and how it can improve education standards and students' achievements is still a major discussion (Ärlestig et al., 2016).

#### *Research objective*

Given the mentioned scenario of studies abroad and in India on the leadership of principals, the present study has been envisioned to explore how the leadership of the principals influenced student's achievement. It hoped to discover aspects of the leadership of the principals that facilitate students' achievement. Through this study, the researchers aim to answer the question –

*How does the leadership of the principal influence students' achievement?*

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*Significance of the study*

The introduction of the RTE Act 2009 changed the expectations of the public from the principals and their leadership roles in schools. Yet, despite these changes, studies on the leadership of principals in India are still limited (Saravanabhavan et al., 2016). Hence, the current study has been conducted.

The researchers believed that the findings of the study could shed light on the important roles of the leadership of the principals on improving students' achievement. The study could also prepare and equip principals with their roles and responsibilities as school leaders.

**Literature Review**

Studies revealed that there is a direct relationship between student success and school leadership (Marzano et al., 2005; Suwanwong, 2016). To date, schools in many parts of the world recognized that improving students' achievement requires leadership (Wahlstrom et al., 2010). The leadership of the principal affects students, teachers, and schools' outcomes (Branch et al., 2013; Hallinger & Heck, 1998; Leithwood et al., 2004; Sadik, 2016).

According to Clifford et al. (2012), there are school variables that directly influence school performance and learning. These variables are 1. school culture, 2. professionalism among teachers and staff, 3. appointment and retention of teachers and staffs, 4. quality of instruction, 5. team collaboration, and 6. proper utilization of resources and implementation of programs. The link that connects the said school variables is the principal (Niqab et al., 2015).

*Principal leadership*

A holistic and integrated view of principal leadership requires an exercise of leadership skills across multiple dimensions, namely: instruction and curriculum, management of the school as an organization, and school culture (Huang, 2013).

Principals are in general expected to set direction, develop people, redesign the organization, and improve students' achievement (Niqab et al., 2015; Wahlstrom et al., 2010).

*Setting direction*

Building and sustaining a vision for school success is a priority among principals. Along with other stakeholders, principals articulate the schools' vision, mission, and goals. Through this effort, the principal can encourage teachers, students, parents, and stakeholders to work as a team for the realization of the common vision, mission, and goals (Terziu et al., 2016).

As school leaders, the principals articulate the values and principles of the organization and deliberately initiate dialogues with their colleagues on how to foster them within and outside the schools.

Setting direction emanates from the principals as the school leaders, yet its success depends on collegiality and sense accountability of every member of the school.

*Developing people*

*"It is neither teachers alone nor principals alone who improve schools, but teachers and principals working together"* (Schmidt-Davis & Bottoms, 2011). Principals need to ensure the development of their people – more specifically, they need to invest in their teachers.

Benchmarking in other schools, organizing in-service training, developing professional learning communities, and building study groups (Leithwood et al., 2004) are some of the efforts the principals need to do in order to keep their teachers intellectually, emotionally, and spiritually stimulated. In the modern world, principals are encouraged too to provide opportunities for their teachers to become techno-savvy facilitators (Litz, 2011).

Class supervision, feedback, peer evaluation, observation, and other personal and professional supports to teachers are also required from principals (Nina & Ali, 2019; Suh & Park, 2017; Xiaoyun & Siqi, 2018). Consequently, through this kind of effort, principals build leaders among their teachers.

*Redesigning the organization*

Redesigning the organization is more than a cosmetic change. It requires proper selection usage of school structures, processes, and human and material resources. It involves ensuring that the said resources are arranged according to the strategic direction of the schools.

With this in mind, principals as school leaders need to be methodical and deliberate in the hiring and recruitment of new talents, and the formation of their teachers and staff. Their knowledge of the socio-economic conditions of their students, the role of government and parents in schools, and the culture, values, and principles of the school need to be factored in by the principals as they redesign the organization (The Wallace Foundation, 2013).

*Student achievement*

In general, achievement means the accomplishment of something. In schools, it would mean the attainment of educational goals articulated by the principals. It could mean the attainment of specific learning objectives in class or the carrying out of desired skills and knowledge by students that are assessed by the schools (Hattie & Anderman, 2013; Malroux, 2017). In India, students' achievement means getting high scores in national achievement exams administered by the education boards and schools.

Parents, teachers, educators, policymakers, legislators have diverse definitions of students' achievement (Hattie & Anderman, 2013; Mueller, 2017; Sarirah & Chaq, 2019). Nevertheless, much is still expected by the principals. These recent years, principals were pushed to improve the quality of education and students' achievements. In fact, this increasing public expectations for better students' achievements has catapulted the leadership of principals at the center of education research (DuFour & Marzano, 2011; Hallinger & Heck, 1998; Leithwood et al., 2004; Waters et al., 2003).

*The Indian education*

The Indian education system has a long history, even before the written language originated in India, the Vedas (ancient scripture) in Sanskrit (language) was orally imparted for at least 800 years since 2000 BC. (Saravanabhavan et al., 2016). With the arrival British in India a new system of education was introduced in India, which gave importance to technology, teacher-student relationship, etc. which came to be known as Macaulay system (Saravanabhavan et al., 2016). After independence in 1947, each state government and union territories became responsible for educating the students up to the primary and secondary level, and the central government coordinated tertiary education by formulating unified policies and guidelines (Saravanabhavan et al., 2016).

### *The school system of India*

Since 1968, the Government has insisted on the uniform pattern of the school system in India. India has the 10+2+3 format. That is 10 years of primary, upper primary and high school, 2 years of higher secondary, and 3 years of college education (Saravanabhavan et al., 2016). The headmasters/principals at all schools must work in collaboration with the government to manage the schools as well as to realize the set educational objectives of the government (Saravanabhavan et al., 2016).

### **Methodology**

The multiple case study by Yin (2014) was used by the researchers to meet the objective of the present study. The researchers kept in mind while choosing the multiple case designs that they need to follow a replication and logic, not a mere sampling.

The researchers conducted five in-depth interviews with school principals who have at least 6 years of leadership experience. During the interviews, open-ended questions with regard to the various curricular and co-curricular practices in the schools were raised by the researchers. The questions were meant to measure the impact of principal's leadership on various school factors such as student achievement.

Moreover, to substantiate the data collected from the interviews, the researchers also analyzed pertinent school documents, which include the annual school plan, the minutes of school meetings with teachers, staff, and parents, and students' progress reports of last 3 years. These documents were examined to corroborate the leadership impact on various school variables such as teamwork, leadership, parental involvement, and impact, etc.

### *Selection of participants*

The researchers invited only the principals who possessed and passed the following criteria:

- a. National awards or state awards recipient for best principal
- b. Principal who is also a resource person for the education board or committees
- c. Principals of school which has a 100% result for the last 3 or more years in grade 10
- d. Principal with minimum 6 years of experience
- e. Principals with minimum 1500 students in the school.

### *Instruments*

An interview guide question was used by the researchers. The interview guide consists of questions about the age, qualification, and leadership experiences of the participants in schools. It also asks about the initiatives, stories, and achievements of the participants and their leadership convictions. Lastly, the interview guide inquires about the vision, mission, and goals of the schools where the participants are and how they involved the parents in school events.

In addition, to validate the principals' responses during the in-depth interviews, the teachers under the principals were respectively interviewed online using WhatsApp. The interviews with teachers include the teachers' experiences with their principal and their descriptions of the leadership, the personal and professional initiatives, the infrastructural development plan, the development of a professional learning community, and the parent engagement strategies of the principals.

### *Data collection procedures*

The data collection of the present study started with sending invitations to the principals. Then, the researchers set an appointment via phone to those who replied to the invitation.

Before the actual interview, the researchers briefed the principals about the study, its purpose, and its procedures. And then, the researchers handed the consent form to the participants. The participants filled out and signed the consent form.

The interviews with every principal about the leadership of the principal and how it influences students' achievements lasted for about 50 minutes. All the interviews were recorded and were transcribed by the researchers.

After the interviews, the researchers requested other data sources to strengthen the findings of the study. These data sources include the progress reports of the Grade 10 to 12 students, the online interviews with teachers, the minutes of the meetings of teachers, staff, students, and parents, and the schools' annual plan.

On the date of the interviews, the researchers also observed the school bulletin boards, the behaviors of teachers, staff, and students, and the facilities of the respective schools.

### *Data analysis procedure*

Using a trial version of the QDA miner, a qualitative data analysis software package for coding, annotating, retrieving, and analyzing small and large collections of documents and images, the transcribed interviews with the principals were analyzed. In particular, the researchers conducted both within-case analysis and cross-case analysis.

Through the said data analysis procedures, the researchers were able to derive codes, categories, and themes from the data. The said emerging codes, categories, and themes were derived from the triangulated data sources (e.g., interviews, document analysis, and observations).

### **Results and Discussion**

This part of the study shows and explains its findings. With this, it must also be noted that the main objective of the present study was to describe how principal leadership influenced the students' achievement. Five major themes emerged from the analysis of the qualitative data, namely: Creating an impact on students' achievements, Maintaining quality instruction, Team building, Enhancing parental involvement, and Demonstrating leadership.

### *Creating an impact on students' achievements*

Principal leadership influenced the students' achievement when student performance is at the core of the school's vision, mission, and goals, which guide instruction, coordination, and professional development. Principals who have impact on students are deliberate in recognizing and facilitating students' achievement in their schools.

To illustrate, one of the principals during the interviews mentioned that "As far as I know, my mission is to facilitate students for them to become winners in life." This statement was supported by the school lead teacher mentioned that majority, if not all, her colleagues believed that their principal is focused on students' achievement. She said that "Our principal is a man with a vision who always strive for the betterment of the school. Our principal makes sure that everything goes well for the students and staff."

Students' achievement is influenced by principal leadership when the principal espouses a student-centered vision, mission, and goals that direct academic programs and curricular and co-curricular activities towards creating a positive impact on students' achievement.

#### *Maintaining quality instruction*

When principals ensure and monitor the delivery of high-quality instruction in classrooms, principal leadership influenced the students' achievement. During the interviews, one of the teachers mentioned that the principal monitors their class activities and programs. She said that *"Our principal monitors our various works. It is very true especially when we are organizing certain class programs"*.

Likewise, the scenario above has influenced as well to teachers. When principals assess, evaluate, and offer regular feedback to their teachers, quality is assured. For some of the principals, they used this event as an opportunity to share teachers' knowledge, skills, and teaching practices, including skills on integration of ICT. According to the principals, the *"Introduction of smart classrooms really helped the students and teachers in classroom instruction"*.

Similarly, they mentioned that they had identified school coordinators, and subject area experts who facilitate the sharing of knowledge, skills, and practices among teachers in order to maintain quality instruction. They said, *"We have coordinators in the school. They are experts in the different subjects we offer. These coordinators help other teachers so that they can improve the quality of instruction. They also learn from each other."*

#### *Team building*

Team building requires time and patience. Principal leadership influenced the students' achievement when the principals take the initiative to bring together the members and direct their efforts towards a purpose. Team building creates better school outcomes (Wienclaw, 2017). One of the principals during the interviews acknowledge the importance of team building. He said, *"No institution can survive purely on individual brilliance. The schools which have a very good group of teachers who work as a team are a real asset for school."*

More so, he added that *"the students achieve a lot better when their teachers and other stakeholders work in tandem as a well-knit unit."*

For this reason, principals are encouraged to build teams to ensure the continuous achievements of their students.

#### *Enhancing parental involvement*

Parents play a key role in schools. In fact, most of the time, if not always, students whose parents are actively involved in their studies perform better in class.

Principal leadership influenced students' achievement when principals involved the parents of their students on school matters that can affect them. The interview with one of the principals revealed that he deliberately interacts with parents to get their feedback about the school, its programs, activities, and operations. He said, *"I discuss with them (the parents) school matters. By doing so, they feel that they are part of the school. Many of them are happy to contribute to the success of the school."*

Principals who are serious about improving the achievements of their students never fail to seek the cooperation and participation of the parents of their students.

#### *Demonstrating leadership*

Principal leadership influenced students' achievement when princi-

pals demonstrate leadership. Most of the teachers during the interviews put emphasis on the importance of the leadership of their principals. They said, *"The leadership of our principals is a motivating factor for us to give our best for the school and our students."*

They also felt that the consultative leadership of their principals encourage them to come up with creative suggestions. They added, *"They (our principals) are flexible and humble, and open-minded. They often consult with us (teachers) and with the parents."*

#### *Recommendations*

The findings of the study may inspire further research on instructional leadership and school leadership. The ways of the principals that lead to students' achievement may serve as a guide to both seasoned and new budding principals who wish to improve the quality and rate of achievements of their students. With this, the present study recommends the following:

1. Principals continue to be mindful and reflective of their vision, mission, and goals for their schools. It is because the content of the VMG, the manner it is communicated and implemented have an influence on teachers, staffs, and ultimately to students, and their achievements in schools
2. Regular monitoring of, assessment of, evaluation of, and feedback on instructions and subject content are imperative to maintaining quality instructions in classrooms. Given this, principals who are serious about improving students' achievements in their schools need to invest time and resources on those mentioned and act deliberately on their implications.
3. The VMG of schools and their strategies require teams. The principals can only do so much. Having teams who promote students' achievement. With this in mind, the present study recommends to principals that they bring together the teachers, staff, and other stakeholders of the school if they want to go far in their quest to improve students' achievements.
4. The findings of the study are consistent with other literature that recognized the critical roles of parents to students' achievements. Thus, the present study recommends to principals that they seek continually enhancing and strengthening their partnerships with the parents. School efforts aiming to improve students' achievements can go far when principals get the support and cooperation of the parents of their students.
5. Leadership shapes the overall performance of the school. The leadership of the principals is reflected in the commitment and performance of their teachers, staff, and students. For instance, if the principals' leadership is centered on instruction then the likelihood to have productive teaching in classrooms is high. The present study recommends to principals that they practice reflective inquiry on their practices as school leaders so that they can find the leadership that suits to their context.

#### **Limitations and Future Research Directions**

The current study is carried out in India only which might limit the generalizability of the findings. The study utilized the case study research design by Yin (2014), it would be good if the present study is investigated in other schools in other regions of India or abroad.

Moreover, at the center of the present study is the accounts of principals on how their leadership influenced students' achievements. With this, a separate study on students' achievements from the accounts of students would be interesting to do. By doing so, we can validate and/or offer new perspectives on how principal leadership influenced students' achievements.

On the pragmatic side, the findings of the study may also inform the education boards of India on how they can redesign leadership programs that are focused on principals' roles as instructional leaders. Likewise, given the size, social demographics, and cultural diversity in India, bud-

ding principals and teachers who struggle in their schools respectively may derive answers from the findings of the study. Through the present study, they may develop appropriate teaching strategies that have significance to the achievements of their students.

### Conclusion

Based on the findings, the study arrived at five conclusions on how principal leadership influenced the students' achievement.

First is that the findings of the study have validated that the principal leadership has influenced students' achievements. The leadership of the principal, which is often manifested in his/her decisions and actions, on her programs, and on her way of dealing with teachers, students, and parents, has consequences to students' achievements.

Second is that the regular monitoring of instruction in classrooms and giving of feedback to teachers by the principals led to quality content and quality delivery of services in the classrooms. This, in effect, influenced students' achievement in the entire school.

The third is that principals recognized that to ensure consistent high students' achievement in their schools they need to build a team. Principal leadership influenced students' achievement as principals tap the talents of their teachers by having them as key partners in the promotion of school strategies that are important to students. By articulating the school purpose and properly delegating relevant tasks to them, teachers feel more motivated to commit to students and their achievements.

Fourth is that parents are integral to students' achievements. Principal leadership influenced students' achievement as principals include the parents on school matters involving the progress of students. Wherever there is a well-functioning Parent-School partnership, students find the school non-threatening and homely. Consequently, students achieve more while they are in school.

The fifth is that leadership matters to students' achievements. The leadership of the principals shapes the overall performance of teachers, staff, and students. The open-mindedness, the zeal for service, and the willingness to listen to the principals inspire teachers' commitment to the school, to the students, and their achievements.

## References

- Årlestig, H., Day, C., & Johansson, O. (2016). *A decade of research on school principals* (Vol. 24). Chan, Switzerland: Springer.
- Branch, G. F., Hanushek, E. A., & Rivkin, S. G. (2013). School leaders matter. *Education Next*, 13(1), 62-69.
- Clifford, M., Behrstock-Sherratt, E., & Feters, J. (2012). *The ripple effect: A synthesis of research on principal influence to inform performance evaluation design*. Washington DC, WA: American Psychological Association (APA).
- DuFour, R., & Marzano, R. J. (2011). *Leaders of learning: How district, school, and classroom leaders improve student achievement*. Bloomington, Indiana: Solution Tree Press.
- Hallinger, P., & Heck, R. H. (1998). Exploring the principal's contribution to school effectiveness: 1980-1995. *School Effectiveness and School Improvement*, 9(2), 157-191. doi:<https://doi.org/10.1080/0924345980090203>
- Hattie, J., & Anderman, E. M. (2013). *International guide to student achievement*. New York, NY: Routledge.
- Huang, T. (2013). *Effective school leadership competencies: A psychometric study of the NASSP 21st century school administrator skills instrument* (Tech. Rep.). Lehigh University, Bethlehem, Pennsylvania.
- Jacobia, R. B. (2016). Future educators perceptions on technology and livelihood education status and development of work skills. *Journal of Advances in Humanities and Social Sciences*, 2(2), 85-91. doi:<https://doi.org/10.20474/jahss-2.2.3>
- Leithwood, K., Harris, A., & Hopkins, D. (2008). Seven strong claims about successful school leadership. *School Leadership and Management*, 28(1), 27-42. doi:<https://doi.org/10.1080/13632430701800060>
- Leithwood, K., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning: Review of research*. New York, NY: The Wallac Foundation.
- Litz, D. (2011). Globalization and the changing face of educational leadership: Current trends and emerging dilemmas. *International Education Studies*, 4(3), 47-61. doi:<https://doi.org/10.5539/ies.v4n3p47>
- Malrouit, Y. L. (2017). Enhancing student learning experience in blended classroom teaching. *Journal of Advances in Humanities and Social Sciences*, 3(6), 324-331. doi:<https://doi.org/10.20474/jahss-3.6.4>
- Marzano, R. J., Waters, T., & McNulty, B. A. (2005). *School leadership that works: From research to results*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Mueller, J. R. (2017). Capturing student learning with thematic analysis. *Journal of Advanced Research in Social Sciences and Humanities*, 2(6), 342-347. doi:<https://doi.org/10.26500/jarssh-02-2017-0601>
- Nina, D., & Ali, M. M. (2019). His strength is my strategies: Experience of an english teacher in Indonesia teaching English for hyperactive students in inclusive class. *Journal of Advanced Research in Social Sciences and Humanities*, 4(2), 66-73. doi:<https://doi.org/10.26500/jarssh-04-2019-0204>
- Niqab, M., Sharma, S., Ali, N., & Mubarak, M. S. (2015). Perception based principal leadership measurement: Does it work in Pakistan? *International Education Studies*, 8(4), 29-39. doi:<https://doi.org/10.5539/ies.v8n4p29>
- Sadik, F. (2016). Investigating primary school teachers' views about their classroom management behavior. *Journal of Advances in Humanities and Social Sciences*, 2(2), 76-84. doi:<https://doi.org/10.20474/jahss-2.2.2>
- Saravanabhavan, R., Pushpanadham, K., & Saravanabhavan, S. (2016). India: School leadership, india at the crossroads. In H. Årlestig, C. Day, & O. Johansson (Eds.), *A decade of research on school principals* (p. 471-481). Chan, Switzerland: Springer.
- Sarirah, T., & Chaq, S. A. (2019). Academic self-efficacy as a predictor toward decisional procrastination among college students preparing a thesis in Indonesia. *Journal of Advanced Research in Social Sciences and Humanities*, 4(1), 23-28. doi:<https://doi.org/10.26500/jarssh-02-2017-0601>
- Schmidt-Davis, J., & Bottoms, G. (2011). *Who's next? Let's stop gambling on school performance and plan for principal succession*. Retrieved from <https://bit.ly/2MLWrMt>
- Suh, J. K., & Park, S. (2017). Exploring the relationship between Pedagogical Content Knowledge (PCK) and sustainability of an innovative science teaching approach. *Teaching and Teacher Education*, 64, 246-259. doi:<https://doi.org/10.1016/j.tate.2017.01.021>

- Suwanwong, A. (2016). Investigating primary school teachers' views about their classroom management behavior. *Journal of Advances in Humanities and Social Sciences*, 2(2), 96-102. doi:<https://doi.org/10.20474/jahss-2.2.2>
- Sylvester, C. (2017). Teachers' expectations of educational leaders' leadership approach and perspectives on the principalship: Identifying critical leadership paradigms for the 21st century. *Journal of Organizational & Educational Leadership*, 2(2), 1-29.
- Terziu, L., Hasani, N., & Osmani, O. (2016). The role of the school principal in increasing students' success. Retrieved from <https://bit.ly/2PXc6LW>
- The Wallace Foundation. (2013). *The school principal as leader: Guiding schools to better teaching and learning*. Retrieved from <https://bit.ly/2QoAXoY>
- Wahlstrom, K. L., Louis, K. S., Leithwood, K., & Anderson, S. E. (2010). *Investigating the links to improved student learning*. Retrieved from <https://bit.ly/32sWNOG>
- Waters, T., Marzano, R. J., & McNulty, B. (2003). *Balanced leadership: What 30 years of research tells us about the effect of leadership on student achievement*. Aurora, CO: Mid-continent Research for Education and Learning.
- Wienclaw, R. A. (2017). *Teams & team building*. Retrieved from <https://bit.ly/2uGUbNJ>
- Xiaoyun, P., & Siqu, M. (2018). The number of virtual learning environment and their effective using impact on students' information literacy. *Journal of Advances in Humanities and Social Sciences*, 4(2), 93-103. doi:<https://doi.org/10.20474/jahss-4.2.4>
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Los Angeles, CA: Sage Publishers.