

## The Role Of Teachers In Enhancing Their Professional Capacity Through Inquiry

Pan Yan <sup>1</sup>, Nidhi Agarwal <sup>2</sup>

Cite this paper as: Pan Yan , Nidhi Agarwal (2024) The Role Of Teachers In Enhancing Their Professional Capacity Through Inquiry. *Frontiers in Health Informatics*, 13(6) 4500-4504

### Abstract-

This qualitative research aims to assess the level of engagement among educators in inquiry-based professional development. The study examined teachers' perspectives, experiences, and challenges regarding professional development programs using classroom observations and in-depth interviews. How much they participate and what effect they think it has on classroom learning are the primary foci of the research. By incorporating research and an inquiry-based pedagogy into their course work, schools that place a premium on research want to train teachers capable of reflective practice. Unfortunately, there is a lack of information about the program's alumni's personal improvement and academic accomplishment. Seven first-year teachers from Dutch academic teacher preparation programs were the subjects of this study, which aimed to assess how inquiry-based practice developed among them. These graduates and their school officials were questioned during a three-year period. As students and the school go through inquiry-based learning, their involvement in the program rises in the organisational hierarchy. Educators could benefit from inquiry-based learning in a number of intriguing ways, according to researchers. While there are still challenges with time and resistance to change, the results show that inquiry-based professional development promotes cooperation and reflective practice. Findings may inform future professional development (PD) initiatives with the goal of raising student accomplishment via more active participation from teachers and the adoption of inquiry-based pedagogy.

**Keywords:** *Inquiry-based learning, teacher professional development, diverse student populations, teacher self-efficacy beliefs,*

### 1. INTRODUCTION

Programs that train educators have increasingly used inquiry-based learning in the last few decades. Research is crucial for educators because it enhances classroom performance, helps them develop in their professions, and allows them to adapt courses to social changes. Academics who can successfully use their knowledge in the classroom are a goal of many countries' teacher-training programs. Integrating inquiry-based learning into teacher training programs has been a trend in the last several decades. Being open to new ideas and methods of instruction, doing research to back up choices, and operating in an inquiry-based manner are all ways in which educators must adapt to society changes. Several nations' teacher preparation programs now include teacher research modules to help aspiring educators learn how to conduct their own research and effectively apply their findings in the classroom. New teachers often carry biases on how research should be conducted and used into their classrooms due to the heavy focus on inquiry-based learning in teacher training programs. Conversely, there is a dearth of data on how first-year educators use inquiry-based learning to improve their practices. Is there any possibility that teachers can use what they've learnt? How did they get beyond these problems, and what might other teachers do to become better? In order to find the answers to these concerns, this study follows the careers of seven Dutch teachers who have just finished their teacher preparation programs and assesses how they use inquiry-based pedagogy in their classrooms (Sosa-Díaz et

al., 2022).

### **Inquiry-based methodology**

In inquiry-based learning, research is done with the intention of assessing and bettering student learning. Although researchers have seen an uptick in inquiry-based learning, my preference remains with project-based learning. The literature uses a variety of terms to describe this approach, including action research, evidence-informed working, data-based working, evidence-based working, and lesson studies. According to earlier research, unskilled educators may sometimes dabble in this kind of study, but they almost never do whole research cycles (Park et al., 2023).

### **Participation of instructors in inquiry-based practices**

Investigating potential entry points for qualified teachers. These kinds of findings show that new college grads are ready to make an impression in the competitive academic employment market. The results demonstrate that the graduates are enthusiastic and prepared to use their research abilities in the actual world. Advanced degree-holding first-year educators often depend less on research and more on literature and self-reflection. Educators often use inquiry-based learning strategies with their own classes. Nevertheless, research has shown that certain school-level educators, especially those holding roles in professional learning communities, actively participate in inquiry-based work (Gobert et al., 2023).

## **2. BACKGROUND OF THE STUDY**

Institutions of higher professional education provide bachelor's degrees that focus on the workforce. In contrast to traditional universities, these schools promote applied research. Although there have been academic programs for more than ten years, very few student teachers actually finish them, leaving most schools without certified teachers. The year 2008 saw the launch of many new degree programs in the Netherlands. A bachelor's degree and other conventional, career-oriented degree options are common at universities that target working adults. In contrast to universities, these schools emphasise practical training above theoretical study. Despite the availability of academic programs for almost a decade, only around 10% of student teachers actually make use of them. As a result, very few students who finish degree programs end up getting jobs in their schools. In the future, many educational programs hope that teachers will be able to put what they've learnt in the classroom to use in the real world by encouraging them to think critically and take initiative. It has been found that as part of their education, student teachers study literature on teacher research from across the globe and learn about various research approaches. Research is the backbone of each of the four years that make up the degree program. Compared to their colleagues in professional programs, academic student instructors are more curious and prone to use research in the classroom. This is why it's so important for teachers to have the skills to effectively implement an inquiry-based strategy for improving students' learning in and out of the classroom (Bhutoria, 2022).

### **Improvement of novice instructors' professional skills**

Many studies have focused on the professional growth of first-year teachers. The majority of the participants in this study are teachers with five to seven years of experience (Stebick & Hart, 2021).

### **Determinants of career progression**

Both individual and institutional challenges inside the school may influence teachers' opportunities for professional growth. Personal characteristics such as background, values, beliefs, aspirations, drive, confidence, and perspective all play a role in shaping an educator's sense of what it means to be a successful teacher (Riley, 2020).

## **3. PURPOSE OF THE RESEARCH**

This study aims to analyse educators' engagement, difficulties, and triumphs in order to determine the impact of inquiry-based professional development (IBD) on their teaching practices. Finding out more about these

characteristics can help in improving educational outcomes and professional development programs, which is why this research is being conducted.

#### 4. LITERATURE REVIEW

Research suggests that inquiry-based professional development (PD) has the potential to improve educators' practice while simultaneously inspiring students to pursue knowledge at all stages of life. Based on research, this method helps teachers incorporate new techniques by emphasising collaboration, introspection, and engagement. The results show that inquiry-based professional development increases teachers' topic knowledge and their ability to reflect on and improve their own teaching methods. Sometimes, obstacles to full engagement include things like a lack of resources (time, money, etc.) or aversion to change. To overcome these challenges, literature stresses the importance of continuous assistance and collaboration. found that inquiry-based professional development enhances learning outcomes for teachers and students alike when properly implemented, notwithstanding these drawbacks. Lack of self-confidence is associated with emotional weariness, job discontent, and eventual resignation among teachers. Teachers' intentions to stay or leave are influenced by TSE (teacher self-efficacy), which indirectly manifests as positive emotions like dedication and contentment. Because of the instructors' sureness in themselves, one may assume that there are more constructive than destructive ways to improve their emotional well-being. Educators face a myriad of issues on top of having to navigate the norms, practices, and dynamics of several school organisations. Structural and cultural elements may support teachers' beliefs when there is a shared understanding of education's purpose or when their own values are supported by the system. School administrators may not share teachers' values, goals, or needs. It becomes challenging to support teachers' professional growth when members' needs, expertise, and opinions clash with those of the institution (Mertler, 2021).

#### 5. RESEARCH QUESTIONS

- How can more educators be involved in developing inquiry-based professional development programs?

#### 6. RESEARCH METHODOLOGY

The qualitative study examined the development of educators' educational perspectives. This technique relied on interviews with principals and other educational administrators.

**Data collection and instruments:** A pilot study Interviews and data-collecting methods were used to compile the study's findings. There were 57 men and 63 females who filled out the 120 total data. The researcher performed interviews. Classroom teachers and administrators were interviewed. Teacher and principal interviews lasted 3-5 minutes. Participants were questioned individually by teachers.

**Data analyses:** To analyses interviews were transcribed first. Based on the literature, the authors classified inquiry-based working and personal, structural, and cultural settings. As a result of the professors' varying years of teaching expertise & the fact that following interviews sometimes brought up earlier years, a chronology could be constructed. Finally, cross-case study uncovered both situational and temporal tendencies in the development of instructors' inquiry-based work.

## 6.1 CONCEPTUAL FRAMEWORK



## 7. RESULTS

Qualitative data indicate that teachers saw improvements in student engagement and classroom management as a result of inquiry-based professional development. Temporal constraints and resistance to change are two of the challenges they face. To surmount these difficulties and enhance the effectiveness of PD, adequate assistance and resources are deemed crucial.

**Table:1 Yes/No Questions**

N=120 (M=57, F=63)		
QUESTIONS	YES	NO
1. Have you participated in inquiry-based professional development programs in the past year?	110 (92.0%)	10 (8.0%)
2. Do you feel that inquiry-based PD has positively impacted your teaching practices?	114 (95.0%)	6 (5.0%)
3. Have you encountered any significant challenges or barriers while engaging in inquiry-based PD?	109 (91.0%)	11 (9.0%)
4. Do you believe that additional resources or support would enhance your experience with inquiry-based PD?	107 (89.0%)	13 (11.0%)
5. Have you noticed any improvement in student outcomes because of implementing strategies learned in inquiry-based PD?	115 (96.0%)	5 (4.0%)

## 8. DISCUSSION

The importance of inquiry-based professional development in improving teaching techniques is highlighted alongside the problems that educators face, such as a lack of time and reluctance to change. By providing individualised help and tools, the researcher can improve educational engagement and the efficacy of professional development. A substantial amount of study has focused on the professional development of first-year teachers. The lack of emphasis on career development in inquiry-based approaches is concerning. By studying the inquiry-based practices of educators with degrees in teacher training, this study hopes to fill a gap in researcher understanding. A total of 110 respondents were asked about their involvement in inquiry-based professional development programs during the last year, with 92.0% agreeing and 10 disagreeing. Additionally, 114 respondents (95.0%) agreed that inquiry-based professional development enhanced their teaching methods, whereas 6 respondents (5.0%) disagreed. One hundred

and ten (or 91%) of the 120 participants thought that inquiry-based professional development would be better if they had additional help or resources. Of the eleven people surveyed, nine percent expressed disagreement. Of the 107 people polled, 89.0% think that more funding or support would improve inquiry-based professional development, while 11.0 percent hold the contrasting view. The majority of the 120 respondents (115 out of 120) believed that professional development strategies based on inquiry had a good effect on student outcomes, whereas a small minority (5.0 out of 120) had the opposite view.

## 9. CONCLUSION

This qualitative research highlights the multi-faceted nature of inquiry-based professional development for educators. Limitations in time and reluctance to try new things make it hard to take use of inquiry-based professional development's potential for reflective practice and classroom improvement. Academic teachers in their first year have unique needs, and school administration should be aware of this. The researcher's shouldn't expect teachers who are competent and willing to think on issues with school structure to be required to put off honing their art for five years or to focus only on their own courses until they attain a certain degree of competence. They should be encouraged to utilise their skills to make their school better for kids from a young age and given greater opportunities to take on leadership roles. Policies pertaining to education are affected by this. Is it realistic to expect first-year teachers to always use inquiry-based tactics in the classroom? Before they feel comfortable teaching, teacher-researchers may lose interest in inquiry-based methods due to the overwhelming nature of the problems they face. Consequently, educational institutions must establish mechanisms that enable educators to fully use their expertise. According to the research, in order to overcome these challenges, a mix of tailored support and systemic changes is required. In order to increase engagement and promote students' academic achievement, the study's findings might provide helpful suggestions for improving professional development programs.

## REFERENCE

- Mertler, C. (2021). Action research as teacher inquiry: A viable strategy for resolving problems of practice. *Practical Assessment Research & Evaluation*, 26(19), 1-12.
- Riley, B. (2020). Drawing on reading science without starting a war. *Educational Leadership*, 77(5), 16-22.
- Stebick, D. & Hart, J. (2021). Systematic Anecdotal Records: An Unexpected Journey into Teacher Inquiry. i.e.: inquiry in education: Vol. 13: Iss. 2, Article 8.
- A. Bhutoria Personalized education and artificial intelligence in the United States, China, and India: a systematic review using a human-in-the-loop model *Comput Educ Artif Intell*, 3 (2022), Article 100068
- J.D. Gobert, M.A. Sao Pedro, H. Li, C. Lott Intelligent Tutoring systems: a history and an example of an ITS for science R. Tierney, F. Rizvi, K. Ercikan, & G. Smith, (editors) *International encyclopaedia of education*, 4, Elsevier (2023), pp. 460-470
- J. Park, T.W. Teo, A. Teo, J. Chang, J.S. Huang, S. Koo Integrating artificial intelligence into science lessons: teachers' experiences and views *Int J STEM Educ*, 10 (1) (2023), p. 61
- M.J. Sosa-Díaz, M.C. Sierra-Daza, R. Arriazu-Muñoz, F. Llamas-Salguero, N. Durán-Rodríguez "EdTech integration framework in schools": systematic review of the literature *Front Educ*, 7 (2022), Article 895042 Frontiers Media SA
- H. Crompton, D. Burke Artificial intelligence in higher education: the state of the field *Int J Educ Technol High Educ*, 20 (1) (2023), pp. 1-22
- K. Kim, K. Kwon Exploring the AI competencies of elementary school teachers in South Korea *Comput Educ Artif Intell*, 4 (2023), Article 100137
- Ho, V.-T., & Nguyen, V.-D. (2022). Buiding a model of implementing the contents of local education responding to the requirements of the general education crriculum 2018. *Vietnam Journal of Educational Science*, 18(4), 12-17.