

A Review of an Article Based on the Mixed Methods Approach in Educational Sciences Regarding Teacher Retention Intention in the Asian Context

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Received: November 23, 2022

Revised: December 25, 2022

Accepted: January 8, 2023

Published: January 29, 2023

How to cite this paper:

Adhikari, B.P & Adhikari, R. (2022). A review of an article based on the Mixed Methods Approach in Educational Sciences Regarding Teacher Retention Intention in the Asian context

The OCEM Journal of Management, Technology & Social Sciences, 2(2), 147-177

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Journal.oxfordcollege.edu.np
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Originality: This paper is original and has not been published anywhere else

Paper type: Research paper
J.E.L. Classification: I (2), I (29)

Abstract

The primary objective of this study was to evaluate the different models of the mixed methods approach along with research problems, questions, and data analysis techniques and to review its overall methodology applied to collect data in a selected educational article. A mixed methods approach is a newly emerged research design of this 21st century where both quantitative and qualitative data can be collected one at a time. This study was based on the review of different articles, books, cases, magazines, and newspapers connecting with the mixed methods approach. The key focus of this study was to introduce the mixed methods approach, quantitative and qualitative approaches, evaluate the theoretical strengths and weaknesses of the mixed methods approach, and explicit meaning of both qualitative and quantitative design and its applications in the different fields of research studies.

The results indicate that the study has covered different aspects of the mixed methods approach along with the theoretical weaknesses of the mixed methods approach. The results have also focused on both quantitative and qualitative research approaches along with the mixed methods approach and different designs of the mixed methods approach. The results further indicate that the core designs of the mixed methods approach are contemporary development and expansion designs, the validity and reliability of the mixed methods approach, the generalization of research outcomes, and statistical generalization. It was indicated that the key findings and discussions were also focused on while reviewing different journals and online documents. The results suggest that factors affecting teacher retention and attrition intention were based on the high workload and unsupportive colleagues and administration, which are similar within China, Nepal, India, and Sri Lanka. The results show that approximately 42% of the teachers reported being highly stressed in China; the same scenario has also occurred in the Nepalese context. The implications of this study would be beneficial to young researchers, students, college teachers and master-level students to foreground the knowledge in the mixed methods approach.

Keywords: *Convergent parallel design, mixed methods approach, qualitative approach, quantitative approach, teacher's retention, teacher attrition intention*

1. INTRODUCTION OF THE CHOSEN ARTICLE

This research has chosen the article entitled Chinese teachers' work stress and their turnover intention published by Liu and Onwuegbuzie (2012). It was taken from the *International Journal of Educational Research*: School of Education, Northeast Normal University. This article has mainly focused on teachers' attention to remain or leave the teaching profession. It has also highlighted the factors affecting teacher recruitment and retention in the Asian context, for example, China, Nepal, India, and Sri Lanka. This article has further summarised that approximately 42% of the teachers reported being highly stressed in China; the same scenario has also occurred in Nepal (Liu and Teddlie, 2010; Subedi, 2008). This researcher strongly believes that factors affecting teachers' intention to leave or remain in the teaching profession are mostly the same in both countries, i.e., Nepal and China.

1.1 Justification of the chosen article with the Nepalese context

This researcher has selected this article for the critical analysis of the Mixed Methods Approach because the context of Nepal and China is highly correlated culturally, religiously, socially, educationally and geographically. More importantly, Nepal and China both lie in the Asia continent and have the same educational background. Additionally, this researcher has chosen this article because it reflects the teachers' retention intention, which supports my future dissertation.

This study helps investigate the teachers' retention intention in the Nepalese context. It will be more appropriate to foreground the knowledge on MMA and factors affecting teacher retention or attrition intention in the teaching profession in the Nepalese context because this researcher is also seeking to investigate teacher attrition and retention intention in the Nepalese context (Veldman et al., 2013).

1.2 Major weaknesses of the chosen article

The major weakness of the chosen article is the limited theoretical foundation on teachers' attrition and retention intention in the teaching profession. Furthermore, a lack of cohesiveness between research objectives and questions is another weakness, along with a biased research design. A lack of cohesiveness between qualitative and



quantitative research design and data analysis and the reliability and validity of research findings are other serious weaknesses (Griensven et al., 2014). Grounding the theoretical foundation to set up appropriate research objectives and questions in the research process is imperative. But this researcher did not find sufficient theoretical foundation and other issues mentioned in the chosen article. Each weakness is discussed below with the argument of different researchers and this researcher (Chen and Yang, 2009).

2. THEORETICAL WEAKNESS

Two authors of the chosen article have only summarised the preliminary discussion of teacher attrition intention in the Chinese context; However, the selected article failed to discuss the rich and holistic literature on factors affecting teacher attrition intention in the Chinese context. The chosen article could not examine new teachers' job satisfaction and dissatisfaction (Darling-Hammond, 2003). Furthermore, the article failed to discuss the key factors affecting teachers' retention and attrition intention in the teaching profession. A lack of social respect, student discipline, colleague support, administrative support; appropriate educational policy; political stability; handsome salary, economic and non-economic financial incentives, and an effective performance evaluation mechanism are entirely marginalized in the chosen article (Ingersoll and Smith, 2003). This researcher concentrates on a strong theoretical foundation for teacher recruitment and retention. But the selected article has covered feeble discussion on teachers' intention to leave or remain in the teaching profession.

Skaalvik and Skaalvik (2011) strongly recommended that education theory be linked with educational practices and cover pedagogy, andragogy, curriculum, learning, education policy, organization and leadership. They further suggested that educational thought is informed by many disciplines, for example, history, philosophy, sociology, and psychology. But these disciplines are neglected, and the chosen article has failed to address the critical theories of education, so the literature on teacher attrition in the Chinese context has been marginalized (Macdonald, 1999).

2.1 Weakness of research design of the selected article

Every educational researcher in every discipline needs to be aware of alternative

research traditions to decide which research method should be used while conducting a research activity. Two major research approaches can be used to study the social and individual world, i.e., qualitative and quantitative research. A combination of these two major research approaches in a research study is called MMA. Many research studies have been focusing on MMA at this so that MMA can be applied to collect and analyze data in the field of educational research (Cohen et al., 2011). This researcher believes that it is better to discuss qualitative and quantitative method research initially in the methodological sector than the researchers can strongly focus on the concrete definition of MMA later on. But this researcher did not find any evidence of a correct combination of qualitative and quantitative method research. Two authors of the chosen article seemed biased toward the qualitative method only to collect data and the qualitative interviews. More importantly, this researcher did not find any coherence between the research questions and objectives. This researcher argues that there would be a lack of validity and reliability of research findings because of the lack of coherence between research questions and research objectives. It threatens research findings (Cohen et al., 2007). It is universally accepted that both qualitative and quantitative research methods can develop a new approach to minimize each method's limitations and maximize the strengths of both qualitative and quantitative research methods. This study aims to explain the significant advantages and disadvantages of MMA and its appropriateness in the context of educational research.

3. QUANTITATIVE RESEARCH APPROACH

3.1 Quantitative Research Design

Pilot and Hungler (2013) defined Quantitative Research Methods as a means for testing objective theories by examining the relationship among variables, i.e., dependent and independent variables. Wong (2014) described that a variable is a factor that can be controlled in an experiment. White and Miller (2014) also noted that the quantitative methods are embedded with quantify or amounts. They further stated that data collected during the study is quantified in quantitative methods, which we call statistical evidence. Many writers (For example, Wong, 2014; Pilot and Hungler, 2013; White and Miller, 2014) have explored their standard views that the variables are categorized as dependent

and independent, and the dependent variables are affected by the event of independent variables; for example, the teacher attrition rate is dependent variable and a lack of administrative support is an independent variable because low salary increases teacher attrition and high salary decreases the teacher attrition at schools in Chitwan District. The teacher attrition rate is influenced by the independent variables, for example, low salary, a lack of student discipline, and a lack of administrative support. Jirojwong et al. (2014) noted that quantitative research falls within the philosophical underpinning of Positivism, where a Positivist believes that social reality is objective and single.

Furthermore, Hamer and Collinson (2014) also supported the views of White and Miller (2014). They noted that quantitative methods research attempts to establish statistically significant relationships between dependent and independent variables. It addresses questions by measuring and describing the phenomena based on objective measurement and observation embedded with the cause-and-effect relationship. Ingham-Broomfield (2015) noted that Quantitative Research Designs are categorized into descriptive, relational, Experimental and Quasi-experimental. Ingham-Broomfield (2015) clarified that the descriptive design could be used in both quantitative and qualitative methods. The correlational design can be used in the survey method to determine correlations; the experimental design is purely embedded with quantitative methods research; and the Quasi-experimental design can use observation and questionnaires to collect data (Ostlund, 2011). Quantitative research design is also a crucial step of a research study, so it will be better to present the research design of qualitative methods (see Table 1).

Table 1. Quantitative research design

Area	Quantitative Methods
Purpose of Research	Directed
Research Paradigm	Positivist, Outcome-focused
Sample Selection	Random
Research Protocol	Structure
Data collection	Precise and Numerical
Validity and reliability	Focused on Instrument
Data analysis	Statistical

Source: Creswell (2003)

Quantitative research design is divided into seven sections: directed, positivist, outcome-oriented, random sampling, structured, precise and numerical, focus on instrument, and Statistical. Quantitative research design is more flexible and easier to collect data than qualitative research design because researchers can adjust the latest data while doing data analysis (Opie, 2004).

3.2 Qualitative Research Approach

Denzin and Lincoln (2005) offer an 'initial, generic definition of qualitative research methods:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. Qualitative research involves an interpretive, naturalistic approach to the world at this level. Qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them (p. 3).

Yilmaz (2013) supported the views of Denzin and Lincoln (2005a) and noted that qualitative research methods explain any research that produces finding not arrived at by statistical procedures and other means of quantification. But this definition is fundamental because it has solely focused on procedures and techniques used to collect and analyze data, ignoring other aspects of research design. Gay and Airasian (2000) disagreed with the views of Yilmaz (2013) and Denzin and Lincoln (2005a). They explored their views that qualitative research methods help collect extensive data on many variables over an extended period in a natural setting to understand that other types of research methods are impossible. Still, this definition also suffers from an identical problem because it uses a quantitative concept to define qualitative terms (Opie, 2004). Qualitative and quantitative designs are equally important, so it will be better to present both methods separately (see Table 2).

Table 2. Philosophical Foundation of the Constructivism

Approaches to subjective viewpoints		Description of the making of social situations	Hermeneutic analysis of underlying structures
Theoretical positions	Symbolic Interactionism Phenomenology	Ethnomethodology Constructionism	Psychoanalysis Genetic Structuralism
Methods of data collection	Semi-structured Interviews Narrative Interviews	Focus groups Ethnography Participant's observation Recording interactions Collecting documents	Recordings Interactions Photography Film
Methods of interpretation	Theoretical coding Content analysis Narrative analysis Hermeneutic methods	Conversation analysis Discourse analysis Analysis of documents	Objective Hermeneutics Deep hermeneutics

Source: Creswell (2003)

The qualitative designs are embedded with approaches to subjective viewpoints, description of the making of social situations, and hermeneutic analysis of underlying structures where theoretical positions, methods of data collection, and methods of interpretation are sub-divisions of qualitative research designs (Lichtman, 2006).

The chosen article also failed to discuss the research perspectives of qualitative methods research which is highlighted in the above table. On the other hand, this researcher also believes that discussing the complete methodological procedures to conduct any research activities is imperative because the holistic discussion of an appropriate research design or methodology ensures the vitality and reliability of research findings (Cohen et al., 2011).

4. MIXED METHODS APPROACH

A Mixed Method approach has been widely applied within educational research for various reasons; for example, this method can ensure the validity and reliability of research findings. The combination of qualitative and quantitative approaches is an exciting topic and continues to be one of discussion. In fact, the different epistemological and ontological assumptions and paradigms related to quantitative and qualitative

research have had a key influence on whether integrating two different methods is possible (Morgan, 2007). Mixed Method research can be viewed as an approach that draws upon each method's strengths and perspectives, recognizing the existence and importance of reality and the influence of human experience as well as the importance of the physical and natural world (Johnson and Onwuegbuzie, 2004). They further defined that a mixed research design is a general type of research that includes quantitative and qualitative research data, techniques and methods. All these paradigm characteristics are mixed in one case study. This method design involves research that uses combined data, for example, numbers and text and additional means, such as statistics and text analysis. A mixed method uses both deductive and inductive scientific methods, collects multiple forms of data, and produces eclectic and pragmatic reports (Hall et al., 2014).

4.1 Meaning of Mixed Method Approach

Tashakkori and Creswell (2007) broadly define the Mixed Methods Approach as "research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches" (2007:3). Cohen et al. (2011) and Hall et al. (2014) supported the views of Tashakkori and Creswell (2007). They noted that mixed-methods research combines both qualitative and quantitative methods and is also embedded with empirical research that involves collecting and analyzing both qualitative and quantitative data. Creswell and Plano-Clark (2007) also defined MMA differently.

They noted that it is embedded with the focused-on research questions that call for real-life, contextual understandings, multi-level perspectives, and cultural influences. Hall et al. (2014) also summarised that Mixed Method Research (MMA) is the combination of two different paradigms that maximizes the strengths of both qualitative and quantitative approaches and frames the investigation within the proper philosophical and theoretical positions. The definition is given by Hall et al. (2014); Creswell and Plano Clark (2011) are limited and confusing because the definition is not specific to the clear concept of Mixed Method Research and fails to cover the philosophical background of MMA. Yilmaz, 2(013); Hall et al. (2014); Durksen and Klassen (2014) summarized that a mixed research design is a general type of research. It includes

quantitative and qualitative research data, techniques and methods. It involves research that uses mixed methods approach data, for example, numbers and text, as well as additional means, like statistics and text analysis. They further summarised that mixed-methods research uses both deductive and inductive scientific methods, has multiple forms of data-collecting instruments and produces eclectic and pragmatic reports.

The definition noted by Hall et al. (2014); Creswell and Plano-Clark (2007) is supported by Tashakkori and Creswell (2007) and states that in the Mixed Methods Approach, the researcher gathers and analyses data, integrates the findings and draws inferences by applying both quantitative and qualitative approaches. The mixed methods approach is the type of research in which a researcher combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, and inference techniques) for the general purposes of breadth and depth of understanding and corroboration. (Johnson et al. 2007. p. 123).

4.2 The philosophical background of mixed method research design

The chosen article failed to cover the satisfactory level of the philosophical background of Mixed Method Research Design because the philosophical strengths of MMA can ensure to set off proper research questions. The authors of the chosen article also failed to convince the readers to apply MMA design for educational research because the theoretical discussion in the methodological section has been marginalized. This researcher has tried to minimize the limitations of MMA design and explore the meaning, research design, strengths, and limitations of MMA design in the following section so that the readers of this study will be convinced and feel comfortable while reading this study.

Leech and Onwuegbuzie (2009) state the following statement to clarify Mixed Methods Design

The adoption of mixed-method designs has been popular science since the 1960s and is considered the new movement in research (p.266).

Jogulu et al. (2011) supported the views of Leech and Onwuegbuzie (2009) and noted that a third methodology, known as the mixed methods approach, has recently gained

researchers' confidence. They further argued that a mixed method approach is also referred to as the third path, the third research paradigm and the third methodological movement. This researcher also believes that mixed-methods research is an emerging research approach to strengthen the reliability and validity of the research findings (Connelly, 2009). Gorarad and Taylor (2004) noted that mixed methods research has emerged as a third methodological tool to investigate social reality. Cohen et al. (2011) also supported the views of Gorarad and Taylor (2004) and defined the Mixed Methods Approach as the third methodological part of educational research.

Similarly, Johnson and Onwuegbuzie (2004) explained MMA in the same way as Gorarad and Taylor (2004), and Cohen et al. (2011) did in the earlier section. Tashakkori and Teddle (1998), Gorarad and Taylor (2004) and Cohen et al. (2011) have given the same definitions of MMA and further noted that MMA is regarded as the third research paradigm. Known to be an intensely comprehensive technique for research in the social sciences through analysis techniques appear to lead to greater depth and breadth in overall results, from which this researcher can make more accurate inferences with increased credibility on teacher recruitment and retention in the Nepalese context (Tashakkori and Creswell, 2007). Yilmaz (2013) and Philips and Paugh (2005) summarised the mixed methods approach as a research design with two fundamental issues.

The first is a theoretical concern related to any specific disciplines in education, that is, the capacity for mixed methods to benefit a variety of research disciplines, for example, education, psychology, organizational behaviour, and health sciences. They further argued that the MMA advocates using inductive and deductive research logic, which is a great strength. Using an inductive and deductive sequence enables researchers to equally undertake theory generation and hypothesis testing in a single study without compromising one for the other. This researcher also believes that researchers must move more into sophisticated research designs, multiple data sources, and analysis which create divergent views and findings (Tashakkori and Creswell, 2007).

Ostlund et al. (2011) have strongly noted that a Mixed Methods Approach combines qualitative and quantitative methods research. It is increasingly acknowledged as a valuable research method because it can potentially capitalize on the respective

strengths of quantitative and qualitative approaches. They further argued that using triangulation as a methodological metaphor can support a better understanding of the links between theory and empirical findings, aid the development of new theories and challenge the current theoretical assumptions of qualitative and quantitative research methods. But the two authors of the chosen article have completely marginalized the above-mentioned philosophical background of MMA. In the meantime, they also failed to explore the strengths and weaknesses of MMA in their article. Therefore, this researcher has discussed the strengths and weaknesses of MMA in the following section.

The chosen article has applied MMA, but it has missed the philosophical background of MMA. This researcher wonders how MMA was used without discussing its theoretical aspects in the literature section. He further argued that the chosen article needs to focus on the strengths and weaknesses of MMA so that the authors could construct relevant research questions and fit their research process properly to collect data. This researcher argues that the chosen article has neglected the literature on the strengths and limitations of MMA. This researcher has presented some aspects of strengths and limitations in the following section (Creswell and Plano-Clark 2007).

4.2.1 Strengths and weaknesses of MMA

Two authors of the chosen article have failed to discuss the strengths and limitations of MMA. Therefore, this researcher argues that the research design of the selected article was very weak and failed to link each section of the research design because a lack of adequate discussion on the methodological section marginalizes the validity and reliability of research findings (Cohen et al., 2011). Furthermore, this researcher argues that the discussion on the strengths and limitations of MMA can support researchers in successfully managing and fitting their research strategies for educational research (Cronholm and Hjalmarsson 2011). This researcher agreed with the argument of Bryman (2007) and noted that integrating quantitative and qualitative findings could strengthen an overall account of the results, which is not possible by using a single research approach, for example, qualitative or quantitative methods research. Similarly, Bernardi et al. (2007) have also stood up in favour of MMA and argued that MMA

could support to highlight the similarities and differences between particular aspects of a research phenomenon, for example, the recruitment and retention of teachers in Chitwan district, because MMA is the combination of two different approaches. The chosen article has failed to argue that logical issues have most recently powered the use of MMA. The increasing demand for a cost-effective research study, the move away from theoretically driven investigation to research meets policymakers' and practitioners' needs, and the growing competition for research funding. Many authors (For example, Creswell et al., 2011) noted that MMA is a pragmatic perspective that draws on employing "what works," using diverse approaches, giving primacy to the importance of the research problem and questions, and valuing both objective and subjective philosophical knowledge.

Johnson and Onwuegbuzie (2004) stated that a mixed-method approach is the third paradigm in educational research, enabling researchers to conduct more effectively. Greene et al. (1989) summarised that triangulation's core premise as a design strategy is that all methods have inherent biases and limitations, so using *only one method to assess a given phenomenon will inevitably yield biased and limited results. However, when two or more methods that have offsetting biases are used to determine a given phenomenon, and the results of these methods converge or corroborate one another, then the validity of inquiry findings is enhanced* (p. 256)

Caruth (2013) agreed with the views of Greene et al. (1989) and noted that the strengths of MMA design could be summarised in that words, photos, and narratives can be used to add meaning to numbers while numbers can add accuracy to words, photos, and narratives. Cronholm and Hjalmarsson (2011) further argued that MMA could handle a broader range of research questions because the researcher is not limited to one research design, can present a stronger conclusion, and offers enhanced validity through triangulation. They further concluded that MMA could add insight and understanding, which might be missed when only a single research method is applied, for example, qualitative or quantitative study design. In mixed methods studies, investigators intentionally integrate quantitative and qualitative data rather than keeping them separate to ensure the reliability and validity of research findings. Creswell and Tashakkori (2007) also supported the views of Creswell and Tashakkori (2007). They

noted that integrating quantitative and qualitative data can maximize the strengths and minimize the weaknesses of each type of collected data of both research methods, for example, qualitative and quantitative methods research. They further noted that the idea of integration separates current views of mixed methods from older perspectives in which investigators collected both forms of data but kept them separate or casually combined them rather than using systematic integrative procedures.

Johnson and Onwuegbuzie (2004) strongly noted that MMA is beneficial for providing a narrative to add meaning to numbers and using numbers to add precision to narrative data. They further argued that a researcher could generate a theory by applying qualitative research and then test it quantitatively. They also noted that mixed methods allow researchers to answer a broader, more complete range of research questions because they are not limited to one approach. Finally, they noted that the mixed-method approach is the third paradigm in educational research, enabling researchers to conduct more scientifically.

Connelly (2009); Creswell and Piano Clark. (2007) agreed with the views of Cohen et al. (2007) and Johnson and Onwuegbuzie (2004) and added that a researcher could use one method to overcome the weaknesses of another method to identify stronger evidence for a conclusion. Applying qualitative and quantitative data in a study can produce complete knowledge needed to inform the educational practice.

Conversely, Yin (2006) warned that a researcher might find it challenging to conduct both quantitative and qualitative research methods, especially if both data types are collected simultaneously. Therefore, a team approach usually is necessary. Yin (2006) strongly argued that the team could understand multiple methods and the best sequence to conduct the research and also be able to combine the findings of both methods of research into a meaningful product. Yin (2006) further argued that MMA usually is more expensive and time-consuming to conduct research studies because it requires multiple data collection methods and demands more money. They further argued strongly that one of the key criticisms of MMA is that researchers often are not clear on how the findings from qualitative and quantitative data can be integrated to provide a fuller understanding of the phenomenon.

4.2.2 Different models of Mixed Methods Approach

The chosen article failed to explain the different models of MMA and their applications in the research design, so this researcher has highlighted some of the critical research designs of MMA in the following section. Hesse-Biber (2010) highlighted five different logics of Mixed Methods design. Each design influences the complementary strengths of qualitative and quantitative methods: It is further noted that each MMA model is not equally crucial for all research studies because it depends on research questions and objectives chosen by a researcher.

4.2.2.1 Triangulation design

Ostlund et al. (2011) state the following statement to support the importance of triangulation in a research study.

Using triangulation as a methodological metaphor may also support a better understanding of the links between theory and empirical findings, challenge theoretical assumptions and aid the development of the new theory (p.370).

Johnson and Onwuegbuzie (2004) noted that the triangulation design of MMA integrates different methods used independently and simultaneously in the study of the same disciplines. It balances the biases and limitations of qualitative and quantitative methods validity of the research findings will be somehow guaranteed.

4.2.2.2 Complementarity design

It is a design of MMA where results from one method are used to elaborate, enhance, and clarify results from the other method. The MMA will allow the researchers to validate constructs and findings and explore different facets of the same phenomenon (Castro et al., 2010).

4.2.2.3 Development Design

Schifferdecker and Reed (2009) highlighted that the development design of MMA is defined as the process of informing the results from one method to another, typically in a chronological system; for example, qualitative interviews can be used to inform the outline of a subsequent survey.

4.2.2.4 Initiation design

Glik et al. (2005) noted that initiation design aims to find and explore paradoxes and contradictions in the research findings. They further declared that the methods are designed to generate new interpretations and conclusions.

4.2.2.5 Expansion design

Expansion design is the combination of two methods used on different phenomena to extend the scope and range of the study. A typical example is the application of quantitative and qualitative research methods used to explore a research project's outcomes and implementation process, respectively (Greene et al., 1989).

This researcher believes this study should mention the three subtypes of MMA designs. The discussion on this issue can support this researcher in choosing one of the three subtypes designs of MMA for his future dissertation and makes him clear to select the most suitable design of MMA. Johnson et al. (2007) further declared that there are three types of Mixed Methods Approach Designs: qualitative dominant, pure mixed, and quantitative dominant. Creswell, Shope, Plano Clark, and Green (2006) also supported the views of Johnson et al. (2007) also that dominant qualitative MMA is suitable for capturing the complexity of some educational and social issues. The qualitative dominant MMA study offers the enormous possibility for generating new ways of understanding the complexities. The contexts of social experience and enhancing the researchers' capacities for social explanation and generalization; this approach can draw on and extend some of the best principles of qualitative enquiry in the educational context (Creswell and Piano Clerk, 2011).

4.3 Research objectives and research questions

4.3.1 Methodological errors

Two authors of the chosen article have applied the Mixed Methods Approach to collect and analyze the data. But this researcher did not find a proper balance and connectivity between qualitative and quantitative research methods. It is universally accepted that the Mixed Methods Approach is embedded with qualitative and quantitative methods research and balanced quantitative and qualitative research instruments to enhance the

reliability and validity of research findings. But the two authors of the chosen article, Liu and Onwuegbuzie (2012), have focused solely on qualitative research methods rather than quantitative method research, so there was more possibility of violating the research validity and reliability (Cohen et al., 2011). Research validity and reliability are crucial elements of both qualitative and quantitative methods. The validity has recently taken in different forms; for example, in qualitative data, validity is embedded with the honesty; depth, richness and scope of the data achieved; the participants approached; the degree of triangulation, and the impartiality of the researchers (Cohen et al., 2007). Similarly, the next in quantitative data, validity, is deeply rooted in the selection of sampling, appropriate research instrumentation and appropriate statistical treatments of the collected data (Opie, 2004). But this researcher did not find a complete combination between the two research designs, i.e., qualitative and quantitative. A lack of a proper research strategy and a wrong research process made the research findings controversial and doubtful of the chosen article. More importantly, the sampling method was stratified sampling. But two researchers of the selected article failed to apply the principles of the stratified sampling method in their research process because they could not determine the primary, lower-secondary and secondary-level teachers from the sampled schools in China. Two authors chose 30 schools as their sample size but did not mention their teaching levels. I want to raise the question of the generalizability of research findings because it was evident that a less representative sample population threatens the generalizability of the results. This author's concern here is the reliability and validity of research findings because feelings, experiences, and opinions of Pre-primary, Primary, Lower Secondary and Secondary teachers are not necessarily the same in the case of their attrition.

Moreover, collected data could not reflect the feeling of all levels of teachers because the chosen sample of teachers does not represent all levels of teachers. Collecting data from four strata is imperative so that actual causes of teachers' intention to leave or remain in the teaching profession could be holistic and rich. More importantly, the authors of the chosen article have entirely broken the critical principles of the stratified sampling method. Two authors of the selected article have applied the survey method in the chosen article. However, they failed to minimize the limitations of the survey

research method because it is inappropriate to collect data on personal experiences, feelings, opinions, ideas, and views regarding the recruitment and retention of teachers and their intention to leave the teaching profession.

Regarding teachers' retention and attrition intention, it would be much better to arrange qualitative interviews (for example, structured and semi-structured interviews) to foreground the research phenomenon. Therefore, the authors could collect holistic and reliable data on factors influencing the recruitment and retention of teachers in the Chinese context (Inghams-Broomfield, 2015). On the other hand, survey methods research is often applied inappropriately. It is relatively clear-cut and fairly simple to employ, even though this may be more illusion than reality (Flower, 2013).

They argued that the survey methods research could be fairly expensive in both budget and time depending on the data collection methods, for example, survey questionnaires and survey interviews. This researcher believes that data collected in the chosen article might be superficial or inadequate compared to other research methods, for example, behavioural observation. More importantly, two authors of the selected article distributed 600 questionnaires to the sampled teachers. They even compelled them to complete within an hour, which is a very sensitive methodological error because teachers who answered the survey questionnaires within an hour lacked internal validity because limited time blocks holistic and rich data from the respondents and limits the accuracy of research findings (Cohen et al., 2007).

On the other hand, 4.21% of participants were principals. But this researcher is not sure that the data given by principals were fair because there are always controversial thoughts between teachers and administrators regarding the cause of teacher attrition. This researcher believes that the research findings generated by analyzing the data collected from the principles lacked descriptive validity because principals are mostly rigid towards teachers' complaints and understating them while exploring their opinion for the causes of their departure or retention (Brunetti, 2001). The big concern of this researcher is also embedded with the data collected by using the random sampling method in the chosen articles because it is challenging to obtain a truly random sample of many populations, and most probable of low rate of response rates (Flower, 2013).

4.3.2 Sampling errors

Two authors have applied the Stratified Random Sampling Method (SRSM) in the chosen article and insisted on its suitability for educational research. This researcher also agrees with Liu and Onwuegbuzie's (2012) views. They added that a stratified random sample is a valuable blend of randomization and categorization. It also enables qualitative and quantitative research (Watanabe and Keeves 2003). This researcher further declares that a quantitative piece of research enables to use of analytical and inferential statistics.

In contrast, qualitative research targets those groups by insinuating participants who can be approached to participate in the study. But the authors of the chosen article ultimately failed to connect with the merits and demerits of SRSM in their research process. The research findings of the selected article cannot be generalized as they did because the data collected from the principles (4.21%) seemed biased and unreliable. The authors of the chosen article applied a simple random sample method. However, it would be better if they had used a stratified random sample method because it provides greater accuracy than a simple random sample method of the same size and greater correctness of the research findings.

Cohen et al. (2011) argued that a stratified random sample often requires a smaller sample, saves money, and guards against an "unrepresentative" sample. A small sample from a mixed-gender population also ensures that the researchers obtain sufficient sample points to support a separate analysis of subgroups.

4.3.2.1 Research tools

The authors of the chosen article have applied opened-ended questions to collect data on possible reasons for teachers' intention to leave the teaching profession. Two authors used opened-ended questions to collect data in the chosen article.

However, this researcher believes that opened-ended questions as a research tool were inappropriate for collecting data on the causes of teachers' attrition in the Chine context because focus group discussion would add more holistic and rich data for the causes of teacher attrition and retention (Cohen et al., 2011). This researcher further believes

that closed questions would be more beneficial to collect data on teachers' intention to leave the teaching profession because closed questions prescribe the range of responses from which the respondents may choose. This researcher further argues that highly structured closed questions are helpful and generate response frequencies amenable to statistical treatment and analysis.

But also enable comparisons across teachers, for example, Pre-Primary, Primary, Lower Secondary and Secondary level teachers in the sample. They are quicker to code up and analyze than word base data, and often, they are direct to the point and deliberately more focused than open-ended questions (Cohen et al., 2007). The survey questionnaires were used to collect data from the chosen articles, which is an appropriate research tool. However, this researcher suspects that two authors of the selected article might have administered questionnaires according to their interests because there is an assumption that respondents will have an opinion about the matters in which researchers are interested. The assumption is risky because it creates problems while administering questionnaires to temporary teachers. It may write anything rather than nothing, which means that the opportunity should be provided for respondents to indicate that they have no opinion on a particular question and feel the question does not apply to them. But this researcher could not find any options in the questionnaires for Chinese temporary teachers in the chosen article (Flower, 2002).

More importantly, the questionnaires applied by the two authors in the selected article were very confusing and difficult to understand for all levels of teachers because there is the issue of choice of vocabulary and the concepts and information behind the administered questionnaires (Opie, 2004). The next issue is English, where questionnaires were administered in English. This researcher did not find any pieces of evidence that all Chinese teachers from different levels could understand the English language correctly. They could not answer the survey questionnaires with complete confidence distributed by the two authors of the chosen article. The language and the concept should be written within the grasp of Chinese respondents because the researcher is interested in and has a background in a particular topic is no guarantee that the respondents will be minded (Vinton, 2015).

The effect of the questionnaires on the respondent has to be considered carefully. But this researcher did not find any supporting evidence to minimize the questionnaire's limitations in the research process (Lichtman, 2006). He further argues that the survey questionnaires can answer the questions of what; where; when; and how, but it is not so easy to provide the answers to why questions by administering questionnaires.

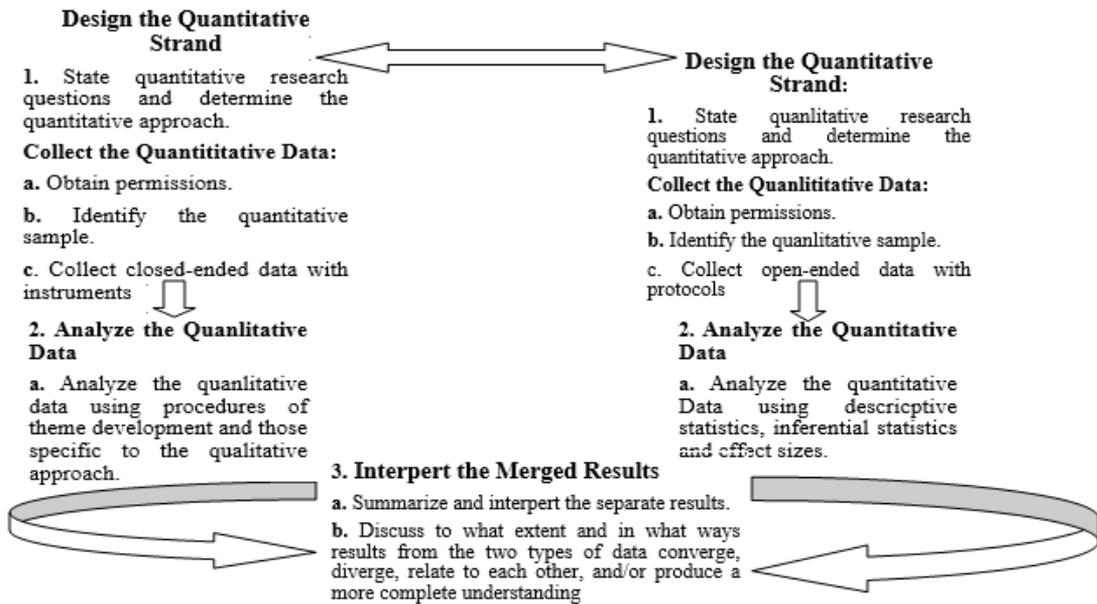
Furthermore, a questionnaire can rarely prove causal relationships and focus on fact-finding. This researcher further argues that the issue of teachers' intention to leave the teaching profession is specific, so it needs to be discussed holistically for rich data that can be collected using qualitative interviews. But the authors of the chosen article failed to address the issues raised by Lichtman (2006) regarding the qualitative methodology.

This researcher suggests that the two authors of the chosen article would have collected valid and reliable data if they had applied the Focus Group Interviews as a research tool. Because More and more research has pointed out that focus group interview is one of the most common methods for collecting qualitative data in the academic arena (Jamieson and Williams, 2003). Cohen et al. (2011) also supported the views of Jamieson and Williams (2003). They added their opinions on the significance of focus group interviews in educational research because focus group interviews help collect data on teachers' attributes, values, experiences and views for their recruitment and retention, as this researcher believes.

4.3.2.2 Convergent design of mixed methods approach

Convergent Parallel Design is one of the popular mixed methods designs. Initially, quantitative data are generally collected by the survey questionnaire, and the interview collects qualitative data, focus group discussion, and narrative storytelling. After a data analysis of both quantitative and qualitative data, similar results are merged into one pile and interpreted rigorously and supported by the qualitative results, and support to foreground the quantitative results (Creswell and Plano Clerk, 2011). The convergent parallel design of the mixed methods approach can be framed (see Figure 1).

Figure 1. Mixed methods design



Source: Creswell and Piano Clark (2011)

4.4 Data analysis issues of the selected article

The chosen article has applied descriptive statistics as a quantitative data analysis technique and comparative content analysis as a qualitative data analysis technique. Quantitative data analysis is a powerful research tool from the positivist tradition. It is often associated with large-scale research but can also serve smaller-scale research studies, with case studies, action research, correlational research and experiments (Cohen et al., 2007). Qualitative data analysis involves organizing, accounting and explaining the collected data; in short, making sense of data in terms of the participants' definitions of the situation does not consist of patterns, categories, and regularities (Cohen et al., 2011). They further noted that qualitative data could be analyzed using different techniques (e.g., Analytic Induction, Constant Comparison, Typological Analysis and Enumeration Analysis). Johnson and Onwuegbuzie (2004) summarised the steps in data analysis in a mixed-method approach: data collection, data analysis, data reduction, data display, and then data transformation to other rounds. After this, they further recommend performing the following steps in the order of data

analysis: data consolidation, data correlation, data comparison, data integration, data interpretation, data legitimation, drawing conclusions and producing a final report. But the chosen article failed to address these crucial steps when analyzing the collected data. Furthermore, two authors of the selected article also could not follow the crucial steps of data analysis; recommended by Johnson and Onwuegbuzie (2004).

4.4.1 Validity and reliability of research findings

The use of triangulation through complementary methods enabled the consideration of many facets of the given problem in a research study. Many authors (for example, Creswell and Miller, 2000; Johnson and Onwuegbuzie, 2004; Mertens, 2005, Carcelli and Greene, 1993; Creswell and Miller, 2000; Greene et al., 1989; Jick, 1979; Mathison, 1988) argue that triangulation increases the validity and reliability of the data. Flick (2005) also supported the views of Creswell and Miller (2000); Johnson and Onwuegbuzie (2004); Mertens (2005) added that triangulation is a validity procedure where researchers can search for the convergence among multiple and different sources of information to form themes in a study. They further noted that triangulation could be more than a scale for validity and reliability. Cohen et al. (2007) argued that triangulation could also capture a more complete, holistic, and contextual portrayal of the units under study. On the other hand, the study of Fraenkel and Wallen (2003) argued that techniques to enhance validity, for example, continuing the data collection over a sufficiently long period and collecting data in as many contexts and situations as possible, will ensure a comprehensive picture of the phenomenon. But this researcher did not find any evidence in the chord article; published by Liu and Onwuegbuzie (2012).

4.4.2 Research generalizability

Pilot and Beck (2010) noted the following statement for the definition of generalizability.

A generalization is an act of reasoning that involves drawing broad conclusions from particular instances, that is, making an inference about the unobserved based on the observed (p.1451).

Kerlinger and Lee (2000); Polit and Beck (2008) noted that generalizability is

considered a primary criterion for evaluating a qualitative research study's quality. They further declared that most qualitative studies aim to provide a rich, contextualized understanding of human experience through intensive research of cases. Cohen et al. (2007) noted that generalization is embedded in the context of the sampling population because a larger sampling population ensures the strength of generalizability based on quantitative data. They further concluded that generalizability is very weak in more minor sampling data based on qualitative data.

The chosen article was biased toward qualitative research methods. Two authors of the selected article argued that they had applied MMA. But this researcher, as a reader, found that most of the data were collected using qualitative tools, for example, qualitative interviews and focus group discussions; however, two authors of the chosen article generalized the research findings for the whole Chinese population. Therefore, it is a completely unacceptable and invalid generalization because the issue of generalization is even more complicated and controversial in qualitative methods research. Thorne (2009) argued that qualitative researchers seldom worry explicitly about the issue of generalizability and cannot cover a larger population. The generalization can be categorized as follows.

4.4.3 Statistical generalization

Lincoln and Guba (1985) referred to nomothetic generalization and further argued that quantitative researchers begin by identifying the population to which they wish to generalize their results. Furthermore, this researcher did not find the selected sample population representative of the whole population. This author further believes that the best strategy for achieving a representative sample population is to use probability (random sampling) methods. This method can give every member of the population an equal chance to have participated in the study with a determinable likelihood of selection (Creswell and Piano-Clerk, 2011). Still, the chosen article ultimately failed to address this critical issue of representative sampling (Polit, 2010). This researcher argues that a random sample is one of the supporting tools through which the statistical generalization model can be enacted (Cohen et al., 2007).

5. RESULTS

The article's authors have summarised some key issues of teachers' attrition and retention intention. For example, there was a lack of administrative support, student discipline; handsome salary; student motivation; and over workload. However, the research findings raised many ethical dilemmas, reliability, validity, and generalizability of the research findings in the chosen article. Eeva-Mari Ihantola Lili-Anne Kuhn (2011) states the following statement.

Threats to the internal validity of quantitative work may occur throughout the research process. A good research design is always of crucial importance when pursuing high internal validity. During research design, the threats to internal validity include insufficient knowledge of or contradictions in the logic. However, deficiencies in the later stages of research, i.e., during data collection, analysis, and interpretation, can also lead to studies with low internal validity (p.42).

Earlier, this researcher pointed out a mismatch between research questions and study design. This threatened the contextual validity during the research design phase because two authors had biased to qualitative research design and manualized the quantitative research design (Lillis, 2006). This researcher found that two authors had used excessive qualitative research instruments while collecting data, for example, focus group interviews, observation, and qualitative interviews. More importantly, the research findings of the chosen article lacked internal validity because of the observer-caused effect, observer bias, researcher bias, data access limitations, and complexities and limitations of the human mind of the researchers (Dellinger and Leech, 2007). Finally, the research findings also lacked contextual validity during data analysis and interpretation, for example, a lack of descriptive validity of settings and events to effect size (Onwuegbuzie and Leech, 2007). This researcher further argues that there was a lack of cohesiveness between research objectives and research questions in the earlier section of the chosen article, so the findings should have missed the internal validity and reliability of the research findings.

On the other hand, the research findings of the chosen article are embedded with a lack of clear and standard instructions and measurement instruments description of items



ambiguously. So those research findings were misinterpreted; abstract concepts were not measured with enough indicators of a similar kind and different administration conditions. More specific threats were likely to exist in the MMA of the chosen article. When quantitative and qualitative approaches were combined in the research design, data collection, analysis and interpretation of data because there was not only a lack of combination of data analysis of quantitative and qualitative methods and tools but also designed wrong research design and research process (Collins et al., 2006) so that this researcher earlier criticized the research process.

6. DISCUSSION AND CONCLUSION

This article has mainly focused on teachers' retention and attrition intention in the teaching profession. It has also highlighted the factors affecting teacher recruitment and retention in the Asian context, for example, in China, Nepal, India, and Sri Lanka. Approximately 42% of the teachers reported being highly stressed in China; the same scenario has also taken place in the Nepalese context as well (Liu and Teddlie, 2010; Subedi, 2008). This researcher found it interesting to review this article because there were many looping holes in the research questions, objectives, and design. This author enjoyed reading the article *entitled the level of teacher job satisfaction and motivation policies* (Chen & Yang 2009). This researcher has tried to point out all the weaknesses of the chosen article and highlighted some critical issues of MMA which were not presented in the selected article. The chosen article also suffered from a strategy for obtaining a justified meta-inference. Because the selected article failed to maintain a clear understanding of the meaning of qualitative and quantitative data when collecting, analyzing, and interpreting it and also was unable to use peer reviews to obtain a justified viewpoint and use participant review to receive a justified perspective, and finally integrate the parts (Stutchbury and Fox, 2009). There might be other critical issues of research design and process that this researcher could not identify in the chosen article. However, this researcher has presented some vital MMA issues for th4 future research studies (Adhikari 2022).

Methodological reflection

The integrated, mixed methods design allowed this author to combine hypothesis testing and hypothesis generation in a single study. Mixed methods research in educational studies can play an important role in developing research in teacher forms of induction support. Results obtained from different methods can enrich the understanding of teachers' retention and attrition problems and questions. In this regard, mixed methods research may add value and contribute to advance results through the use of triangulation methods. The current review has contributed a deep understanding of new teachers' retention or attrition intention in the profession based on the selected article following a mixed methods approach in their study.

Because it is an easy-to-use framework for collecting and initially analyzing quantitative data and applying the results to inform data collection in subsequent phases, using a mixed methods design also made the selected study's outcomes more valid and reliable concerning what it had to measure and what it really measured. Another benefit of the current review of the article chosen was gained by studying the convergent parallel design to collect and analyze two independent strands of quantitative and qualitative data simultaneously in a single phase, followed by first quantitative and then qualitative data collection. The selected article applied the convergent parallel design, which supported the aims of the data analysis of the review article to prioritize two different methods equally, to keep the data analysis independent, and to mix the results and try to look for convergence, divergence, contradictions and relationships of the two sources of data during the data analysis (Creswell & Plano Clark, 2011).

However, the convergent parallel design was challenging for reviewing the selected article's methodology because it requires considerable effort and information to consider the consequences of having different sample sizes when merging the two data sets (see Creswell & Plano Clark, 2011). The purposes of both quantitative and qualitative methods are incredibly different (generalization vs in-depth description). The difficulty in combining two groups of similar questions in the qualitative interview and in the survey questionnaire and their outcomes in a meaningful way was another challenge of this study. The convergent parallel design was also somewhat challenging in managing the data when the quantitative and qualitative results did not agree on specific points of this review (Östlund, Kidd, Wengström, & RowaDewar, 2011).

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