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Developing an Educational and Cognitive Competence Model for Future Teacher's for Independent Work – The Case of Indonesia

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Teacher's training has become a multifaceted process comprising key competencies of which cognitive and educational competence holds paramount importance. The primary aim of teacher's training is linked to determining the essence along with differentiating the key elements of the formation of the future teacher's cognitive and educational competence. This study focuses on the development of a model of future teachers' educational and cognitive competence in independent work. In pursuit of this objective, the researcher has incorporated a review-based design guided by the interpretivism paradigm involving the meta-synthesis of extant academic literature. The researcher conducted a comprehensive review of the extant literature and seminal work to delineate the essential educational and cognitive competencies that must be demonstrated by the teachers to effectively perform their job roles. The article presents five educational and three cognitive competencies that must be mastered by the teachers for their educational and cognitive competence and to enhance their ability to work independently. The model is proposed to be used by the teaching and educational professionals as a competence-based criterion for the training and assessment of the teacher's performance in Indonesia. The key limitations and strengths of the study were added together with important recommendations for relevant academics and practitioners.

Keywords: model, pedagogy, independent work, educational competence, cognitive competence, competence development, teacher's competence

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INTRODUCTION

Background

The training of teachers has emerged as a multifaceted process focused on the development of various key competencies, among which cognitive and educational competence holds paramount importance. These competencies hold immense importance in the context of teaching because these competencies contribute to the development of the professional and cognitive independence of the teachers, enhancing their self-sufficiency in their tasks, thereby ultimately enhancing their ability to work independently (Habelko & Demchenko, 2021). In the modern knowledge-driven society, the importance of independent working ability has gained increased attention. Teachers are also expected to exhibit the ability to work independently to develop learning plans that create a meaningful learning experience for the students. They are expected to demonstrate the ability to design the optimal learning environment for the learners and develop the key abilities that will facilitate them to thrive and progress in the modern dynamic society (Peklaj, 2015). To meet these expectations and create an optimal learning environment for the learners, teachers develop various teaching, teaching management, communication, and evaluation skills to facilitate student cognitive, emotional, and academic development.

The notion of competence has been used extensively in a wide variety of contexts and settings. Thus, the term may have varying meanings according to the varying contexts. In the context of teaching, the notion of competence has been used in the context of teacher training and teaching performance. In this regard, the notion of competence can be understood as the capabilities of the teachers in terms of the required knowledge, skills, abilities, and attuite that the treachery must demonstrate in their teaching practice (Bergsmann et al., 2015; Crane et al., 2012). Academic scholars define the competence of the teachers as the set of knowledge, skills, and behavior, appropriate qualifications and the ability to perform a particular role. These competencies are required by the teachers to become self-sufficient in their jobs and create a meaningfully learning environment for the students (Bachmann, 2018). These competencies are concerned with the ability of the teachers to meet the complex learning needs of the students via mobilization of psychosocial resources (Brundrett & Silcock, 2002). Thus, such competence is essential for teachers to pursue excellence.

It is asserted that the training of the teachers focused on the development of competence can facilitate the teachers to properly perform their job roles independently. It ultimately contributes to the professional development of the teachers (Alqiawi & Ezzeldin, 2015). This demonstrates that the teacher's effectiveness can be assessed on the basis of certain competence-based criteria that can aid in the training of the teachers (Zeichner, 2010). It is evident by the researcher that the past performance of the teachers demonstrating certain competence levels appropriately predicts the future performance of the teachers in their role. These competencies are among the top criteria when selecting appropriate individuals who can be considered fit for the job (Naumescu, 2008). The teachers must mobilize their educational and cognitive competence to perform their role effectively. In this recognition, the present paper assesses and proposes a model for developing the

educational and cognitive competence of the teachers to enhance their self-sufficiency in their job roles and tasks that ultimately improve their ability to work independently. The proposed educational and cognitive competencies can be integrated into the future training of the teachers to enhance their professional competence and enable them to work in an independent and self-sufficient manner.

Problem Statement

The contemporary education system is characterized by increasing reliance on continuous development, the need for teaching experts that are self-sufficient and self-managed and independent and autonomous work. Modern education has emphasized the importance of the educationists being capable of self-development (Timerbaeva et al., 2019). Thus, there exists a dire need for the teachers to develop their educational and cognitive competence in a way that enables them to enhance their self-sufficient to work independently. Some studies in the extant literature are focused on the required cognitive competencies of the teachers, while the others are focused on the required educational competencies of the teachers. However, no study in the past has proposed a holistic model signifying all the relevant educational and cognitive competencies that can be integrated to enhance the self-reliance of the teachers and enable them to work undependable. In this regard, this study aims to integrate all the educational and cognitive competencies in a model that can be integrated to develop independent working competence of the teachers.

Research Objectives

As it is established in the analysis of the research background that the development of the educational and cognitive competence remains the focus of the teacher training as they are considered the top criteria for selecting appropriate individuals for the job. In this context, this study proposes a model comprising various factors that aid in the development of the educational and cognitive competence of the teachers and unlock their potential to work independently and self-sufficiently. This study presents pedagogical conditions that are essential for the teachers to effectively perform their job and create a meaningful learning experience for the students. In pursuit of the achievement of this aim, the following objectives have been formulated for the study:

- To delineate the educational and cognitive competencies required from the teacher to perform effectively and work independently;
- To design a model for developing the educational and cognitive teachers' competence to work independently that can be incorporated into the training of the future teachers.

Research Significance

The significance of this study is highlighted by its contribution to the relevant literature. The development of professional competence has been widely discussed as an important factor for effective teaching practice. The findings of this study highlight the key educational and cognitive competencies that the teachers must demonstrate to effectively

perform their roles and work independently. In this way, the findings of the study contribute to the extant literature on the professional competence of the teachers. Besides, the findings of the study also have some practical implications. The educational and cognitive competencies outlined by this study can be integrated into the professional training for the future teacher's educational and cognitive competence to develop their ability to work independently. Such competency-based training can be incorporated by the teaching professionals and institutes in Indonesia to develop training and development programs aimed at the development of the professional competence of the teachers.

Literature Review

Educational Competence of Teachers

Every role requires some unique competence, capability and energy to complete the assigned duties successfully and exactly as per the strategy. The term "competence" refers to various abilities that can be categorized as knowledge, attitude, and performance-enhancing abilities. It is crucial for a teacher to strive for career achievement. One of the renowned scholars, M.C. Leod, claims that a teacher's competency is determined by their capacity to perform their duties in an ethical and practical manner (Wordu & Isiah, 2020). The most important factor in raising pupil success and minimizing the achievement disparity is a competent coach, instructor, or teacher. The quality of instruction has the single greatest impact on learners' learning, but most institutions do not have a clear representation of what constitutes a good teaching platform.

Baumert and Kunter (2013) contend that the interaction of professional knowledge, ideas, concerns, and self-control leads to competent teaching practice. The foundation of PAC is professional knowledge. Domain-specific content knowledge (C.K.) and pedagogical content knowledge (PCK) are the two things that matter most for teaching practice. To influence the teaching processes, instructors also need context information, such as basic pedagogical knowledge, institutional knowledge, or counseling knowledge. The cognitive positions of ideas and facts are different.

As distinct types of teacher competency are there in the literature, they are interesting to explore. Value orientations, cognitive views (worldly perspectives), subjective conceptions of instruction and training, as well as goal frameworks are among the attitudes and concepts that are crucial for effective teaching practice. Motivation and self-control skills play a significant role in determining intentions and behavior, making them vital for psychological functioning (Lohmann et al., 2021). This concept of teachers' professional knowledge indicates a slightly constrained notion of competence because it conceptualizes competence as both profession- and domain-specific, such as specific to school teachers.

Teacher competencies are a collection of specific information, abilities, and perspectives that instructors use to affect the progress of the overall educational process. They are the ability of a human that is realized by completing complex actions throughout the educational activity (Nikola, 2021). Teachers must establish various teams and

particular competencies within these organizations in the ability to constantly perform at a top standard and perform their tasks flexibly, considering that the teaching system is by its very structure and essential and highly dynamic.

Cognitive Competence of Teachers

For a comprehensive clarification of the social and cultural progress of the conceptual intelligence framework and various theories of cognitive skills, competence or mental skills can be classified as "an incredibly broad mental capability comprising the potential to rationale, strategy, resolve issues, think imaginatively, grasp complicated thoughts, quickly understand and discover from encounters." While there is currently debate on the specific organization of cognitive talents, a well-known viewpoint sees them as being hierarchically arranged. Therefore, according to Spearman (1904), intelligence may be explained by considering each general cognitive capability (general intelligence factor, "g") that is present in all intellectual activities and distinctive capabilities that are peculiar to each individual intellectual work (Blankson, 2022).

In this regard, the specialized cognitive talents are conducted below the general intelligence component ("g"), which now occupies the top of the pyramid of cognitive capabilities. Large portions of g are carried by the specific cognitive talents, which include areas like spatial or quantitative reasoning. Differentiating between fluid and crystallized skills is another method for describing the hierarchical structure of intelligence. Crystallized capabilities allude to one's basic aspect of knowledge essential to adjustment in existence, encompassing capabilities like language, as opposed to fluid abilities. These comprise the capacity to resolve innovative or complex situations using general thinking processes. Nevertheless, several academics have argued that g can easily be used to describe fluid intelligence.

In the current times, research has primarily concentrated on predictors of teachers' cognitive abilities, including teachers' fundamental academic competencies or college entrance exam results, including the Scholastic Aptitude Test (SAT), American College Test (ACT), or indicators that have strong affiliations with intelligence. Aloe and Becker (2009) showed that the impact of results on verbal college admission examinations on instructor effectiveness was not substantially distant from zero in another such meta-analysis that focused on verbal talents. A second meta-analysis that took instructors' performance on a test of fundamental academic skills into account found a marginally positive relationship between teacher productivity and basic abilities assessment results (Kovacs & Conway, 2019).

Development Model for Teachers' Education and Cognitive Competence

Teaching-relevant information and social, cognitive, and emotional abilities are identified as the main determinants of knowing to educate, respectively, in the Integrative Model of Teacher Education, a developmental model of learning to teach that can be tested. The loops of learning, and practice, with assessment already ingrained in high-quality teacher preparation (pre-or in-service), can be leveraged into significant growth, ending in the automaticity of the basic teaching practices once enough knowledge and skill acquisition has taken place. The automaticity of core

practices, which is the cornerstone of impactful teaching and the benchmark for an aggressive teacher learning initiative, enables random cognitive and emotional funds to be delegated to the complicated, non-routine, as well as strongly adaptive behaviors that distinguish skilled educators (Hirshberg, 2022).

Integrative teacher education is a conceptual transformation toward a teacher achievement that comprehensively exhibits knowledge and abilities that are pertinent to teaching and social, cognitive, and emotional capabilities so that cycles of practice, understanding, and perception could indeed be used to foster automaticity and enable expert educators. Curriculum creation, training approaches, educational materials, and instructional scenarios have all been examined within the scope of this novel approach (Vázquez et al., 2020). It is necessary for teachers at various levels and within various institutional settings to thoroughly study these aspects and actualize these concepts and practices to meet the task of effective, quality CLIL.

Owing to this, it can be difficult to develop pedagogical and pragmatic structures that assist teachers in integrating these elements in line with fundamental concepts. In this manner, the development of Anderson and Krathwohl's (2001) functional taxonomy of the cognitive process, a revised edition of Bloom's taxonomy, is a systematic and a useful way to foster thinking skills in the classroom (Vázquez & Ellison, 2018). Considering this, the cognitive categories of this prototype are examined. Remembering, understanding, applying, analyzing, evaluating, and creating are some of the six areas that make up the cognitive process aspect. These cognitive processes range in complexity from the fundamental to the most complicated. This approach offers a thorough spectrum of the cognitive and other mental activities that pupils may be able to perform in the classroom under the supervision of the teacher.

This taxonomy is divided into six categories, comprising mainly lower-order thinking skills (LOTS) and higher-order thinking abilities (HOTS). They are typically depicted as a hierarchy or tall structure, with the recall processes at the base and the innovative cognitive activities at the top. The acquisition of LOTS, which enables a deeper comprehension of the material being delivered and the pragmatic implementation of information and abilities in real-life situations, is where students derive their analytical skills in accordance with this structured hierarchy (Campillo-Ferrer et al., 2020). Consequently, this structure serves as a practical and logical structure for teachers to foster students' unique thought processes, link those mechanisms to the broader learning goals for material and evaluate students' learning results.

Given its importance, CLIL instructors frequently turn to this taxonomy when creating lesson plans so they may integrate cognitive processes, language objectives, and content targets into each academic discipline. Because of this integration, learning becomes a really dynamic process that necessitates precise teaching design and incorporates demanding activities that help students improve their ability to solve issues and make decisions (Nikula & Moore, 2019). Ideally, these are the instructors or teachers who play a crucial role in ensuring that students have many opportunities and efficient resources to analyze the information and conduct cognitive efforts in the L2 to encourage the growth of these capabilities (Evnitskaya & Berger, 2017).

In order to help teachers meet these requirements, Anderson and Krathwohl's taxonomy has subtypes, also known as cognitive systems that allow instructors to more accurately systematize educational methods and incorporate insightful ideas into CLIL learnings that gradually enhance educators' cognitive and linguistic achievement. Bringing these divisions to a more detailed level of teaching practice, nevertheless, continues to be a challenging goal for academics, program developers, and instructional researchers and for instructors.

Importance of Independent Work and Relationship Between Educational & Cognitive Competence and Independent Work of Teachers

It is asserted that in the context of the modern education system, the notion of independent work and self-sufficiency has gained popularity with a focus on the development of the teaching experts self-sufficient and self-managed with the capability to work autonomously. The teachers, are thus, required to comprehensively develop their educational and cognitive competence to be able to work independently. The self-sufficiency and self-reliance are the precursors of the independent working ability that are concerned with the ability of the individuals to effectively control and manage their tasks (Timerbaeva et al., 2019). It is posited that the confidence in one's self and self-sufficiency and independence is imperative for achieving the professional success. Moreover, such beliefs and self-confidence play a crucial role in an individual's ability to tackle and solve problems and manage their work without the need for additional assistance (Yilmaz et al., 2010).

It is argued that beliefs and perceptions held by the teachers pertinent to teaching and learning mechanisms enable them to maintain attitudes and influence behavior. In this regard, the perceptions of the teachers pertaining autonomy thus come to the fore as one of the major factors for working independently and being self-sufficient in their field (Var, 2018). It is believed that people with higher self-sufficiency are more likely to solve their problems on their own and offer effective solutions to the problems (Sourchi & Liao, 2015). Beliefs in teacher autonomy are defined as teachers' perceptions of their abilities and skills to achieve the intended outcomes for student engagement and learning (Var, 2018). Besides, Peklaj (2015) has asserted that in the present times, it is expected from the teachers to demonstrate the ability to independently develop learning plans that create meaningful learning experiences for their students. They must exhibit the capability of designing optimal learning material and environment for students. Thus, independent working ability holds immense importance for the teachers in contemporary times.

It is recognized that the perceptions held by the teachers pertinent to their ability to work in a self-sufficient and autonomous manner autonomy has a significant impact on their performance. Besides, the ability of the teachers to be self-sufficient in their work is contingence upon the competence of the teachers. The teachers' confidence in their professional competence increases their confidence in their work and expectations of future abilities, while the perceptions of poor confidence can decline the confidence of the teachers in their abilities (Var, 2018). This implies that the teachers' confidence in their confidence is a pre-requisite to becoming self-sufficient and to work

independently. The training and development activities in the context of training have been specifically focused on the development of a range of critical competencies, including both educational and cognitive competencies. These competencies have been regarded as crucial for developing teachers' professional and cognitive independence, thereby increasing their ability to work independently (Habelko & Demchenko, 2021).

Research Gap

On the basis of the aforementioned literature findings, it is deduced that there exists a dire need for the teachers to develop their educational and cognitive competence in a way that enables them to enhance their self-sufficient to work independently there are studies regarding the educational competence of teachers, cognitive competence of teachers along with a developmental model for teachers' education and cognitive competence; however, none of the past studies offer a holistic model proposing all the educational and cognitive competencies that can be integrated into the development of teachers in independent work competence. Therefore, a study is needed that could help create a model for developing future teachers' educational and cognitive competence in independent work.

METHOD

Research Paradigm

For this study, it is imperative to determine the philosophical Paradigm of the researcher given the fact that this philosophical stance reflects the manner in which the researcher evaluates the knowledge and facts (Saunders et al., 2009). In this regard, this study is based on the philosophical paradigm of interpretivism that denotes that knowledge is extracted from social reality (Alharahsheh & Pius, 2020). In particular, the researcher has incorporated "hermeneutics paradigm" of interpretivism philosophy to extract knowledge pre-existing literary texts (Warnke, 2016). With the incorporation of the hermeneutics paradigm, this study draws its findings from the credible and relevant extant literature. In particular, the study involved a meta-synthesis of pertinent academic literature pertinent teaching to delineate and integrate major educational and cognitive competencies that that would contribute to their self-sufficiency on assigned tasks, thereby enhancing their ability to work independently.

Research Approach and Design

The research approach can be understood as a plan that guides the selection of the methods and techniques to be incorporated at different stages of the research process from data collection to interpretation (Creswell & Creswell, 2017). The researcher has adopted an inductive reasoning approach to develop theory at the end of the research after the comprehensive observations and analysis of the extant literature pertinent to the educational and cognitive competencies of the teachers who must work independently (Hayes et al., 2010). In particular, on the basis of the meta-synthesis of the relevant academic literature, this study develops a model for the developing teachers' educational and cognitive competence in independent work. The model integrates all the major educational and cognitive competencies that are required by teachers to work independently.

Besides, as this study is based on the hermeneutics paradigm of interpretivism philosophy, the study offers qualitative research based on the comprehensive analysis of the pre-existing data (Cleary et al., 2014). In particular, for developing the model. the researcher has comprehensively analyzed the extant literature to determine the factors that can be integrated into the development of the educational and cognitive competence of the teachers to enhance their ability to work independently.

Furthermore, in line with the aforementioned research approach and research paradigm, the study has incorporated a review-based research design to conduct a comprehensive and critical review of the credible extant literature. The researcher reviewed and analyzed the archival research to gather sufficient data on the specific practices and techniques that can be employed to develop the educational and cognitive competence of the teachers and improve their self-sufficiency and self-reliance to be able to work independently.

Collection of Data

Selecting an adequate method for collecting data is critical for the results of the research. Generally, data collection is the process by which the researcher gathers the data that is needed to establish an understanding of the research phenomenon (Saunders et al., 2009). As this study is based on a review-based research design, the researcher collected credible secondary data for extracting findings. In particular, the researcher synthesized the findings from relevant peer-reviewed journal articles and other academic sources. In order to collect relevant academic material for meta-synthesis, the research developed a clear and specific inclusion/exclusion criterion in orders to filter and select the most relevant and credible studies. Succinctly, the researcher has ensured to source the papers from sources that were open to public access in order to avoid issues pertinent to permissions for data use. Moreover, only those studies were sought to be included that were published in the English language, corresponding to the study's topic, were original works of the authors and published within the past 10 years. Moreover, the researcher also assessed the relevance of the findings to the Indonesian context before including them in the study. In this way, peer-reviewed journal articles and relevant studies were sourced from credible databases including Google Scholar, JSTOR, Scopus, Directory of Open Access Journals, EBSCOhost, etc. To search the finding the material that is relevant to the research topic and aims, the researcher used relevant keywords and phrases including, but not limited to “cognitive training of teachers”, “factors contributing to independent work of teachers”, and "measures to develop cognitive and educational competence of teachers” etc. As a result of the aforementioned and data search strategy, the researcher was able to collect 20 papers for the extraction of research findings. Specifically, the findings of the study are based on the findings of Yamin, (2018); Fernet et al., (2016); Abid et al. (2017); Ngugi & Thinguri, (2014); Jadama (2014); Bulent (2015); Miles (2010); Abduh and Zainudin, (2016); Molnár and Benedek, (2012); Selvi, (2010); Taylan, (2018); Alves et al., (2017); Ruys et al., (2012); Stigler and Miller (2018); Enow and Goodwyn, (2018); Chizhik and Chizhik, (2018); Khan et al., (2017); Okoli, (2017); Muste, (2016) and Bee (2012).

Data Analysis

Following data collection, the researcher thoroughly analyzed the collected data to achieve the desired insights and results. As the present study is based on the reviewed-based design, qualitative data was collected as the results of the comprehensive review. For the analysis of such type of data, the researcher incorporated thematic analysis and analyzed the major and repeated patterns and themes across the datasets. This enabled the researcher to report the study findings under various themes. Along with the thematic analysis, the study also incorporated grounded theory analysis as the researcher comprehensively analyzed the data for the development of the model for developing the educational and cognitive competence of the teacher in order to enhance their self-sufficiently on assigned tasks ultimately improving their ability to work independently.

Ethical Considerations

It is important to adhere to ethical principles of research when conducting research. Based on this premise, researchers are obliged to ensure adherence to established ethical codes of research (Connelly, 2014). In order to comply with the ethical standards of the research, the researcher ensured to maintain the originality of the study findings. The researcher collected data from credible and reliable sources. Besides, all the data are collected from publicly accessible databases. Furthermore, the researcher ensured that no finding is reported without accolading the source of the finding to avoid plagiarism. All the secondary findings are properly acknowledged and referenced throughout the study.

FINDINGS AND DISCUSSION

After conducting a thorough analysis of the extant literature, the researcher drew certain inferences pertinent to the educational and cognitive competence of the teacher that can be implemented in Indonesian education sector for enabling the Indonesian teachers to be self-sufficient, demonstrate high professional competence and work independently. It must be highlighted that the proposed educational and cognitive competencies can be applied to the training and development of teachers of all levels (primary, secondary and tertiary). Using thematic analysis, the following major themes have been identified across the datasets:

Educational Competence

Analyzing the datasets, the following educational competencies are found to be important for that can be implemented in Indonesia for the training and development of teachers to enable them to work independently:

Reading and Writing Proficiency

The reading and writing proficiency of the teachers which can be referred to as literacy competence is the capital for assessing the educational competence of the teacher. These skills enable the teachers to improve their overall teaching ability. The more proficient the teachers are at reading and writing, the better they will be able to develop and deliver the lessons to the students without relying on anyone's help (Yamin, 2018).

Moreover, it is asserted that it is imperative for teachers to have the ability to write critically that further enhances their teaching skills (Fernet et al., 2016). The level of reading comprehension of a teacher, whether high, medium or low, depends on how well the teacher writes. Proficiency in reading and writing implies that teachers not only have good knowledge in terms of educational and professional abilities, but they also possess the ability to transform the knowledge into words that can be understood by their students. This demonstrates that the teacher has mastered the desired knowledge in both theoretical and practical terms (Yamin, 2018).

Subject Proficiency and Understanding of Curriculum Objectives

According to Abid et al. (2017), the educational competence of the teacher is reflected in the solid knowledge of the education module of his/her subject and a strong command of all the concepts of the particular subject area. Considering the most essential component that is a pre-requisite for the preparation for the lesson, it is necessary to give priority to a thorough understanding of the lesson content that cannot be achieved without a solid knowledge of the subject matter (Ngugi & Thinguri, 2014). According to Jadama (2014), it is not possible for the teachers to prepare a lesson on something that they do not have any knowledge about. The teachers must have a sufficient level of knowledge and understanding of the subject matter in order to help their students in learning that particular subject. In the process of teaching a subject, students' misunderstandings and doubts need must be resolved. However, if the teacher lacks thorough subject understanding, this becomes almost impossible. In addition, teachers who are largely ignorant of the subject may pass on inaccurate thoughts to their students, use the text uncritically, and even make inappropriate changes. If the teacher has little knowledge of it, the teacher will find it very difficult to answer various questions from students on the subject.

Awareness of Updated Subject Content

As established, strong knowledge of the subject matter is important for the educational competence of the teacher. However, it is also found that teachers are required to update their knowledge and reflect the understanding of the recent updates in the subject content. Teachers are, thus, required to update their skills and knowledge in order to ensure that the knowledge that they deliver to their students is up to date according to the recent changes in education. This is because education is an ever-evolving field and thus, it is important for the teachers to adapt to such changes to continuously develop their knowledge and ensure the delivery of high-quality and up-to-date knowledge to their students.

Knowledge about Science and Technology

The educational competence of the teachers is also reflected in the sufficient knowledge of science and technology. As per Bulent (2015), teachers must have a basic understanding of science regardless of their subject area. Lacking the understanding of science can make it difficult for them to understand the world and establish essential connections. In this context, Miles (2010) has claimed that teachers generally possess inadequate knowledge of the science and they do not pay much attention to this area. As

per Abduh and Zainudin, (2016), the ability of teachers to master science and technology reflects their high educational competency and enables them to create a meaningful learning environment for the learners.

Application of Scientific Research Skills

The ability of the teacher to research and apply research to their teaching is yet another important aspect of the educational competence of the teachers (Molnár & Benedek, 2012). Research skills include strong knowledge of the research method and technical abilities and the design and implementation of research in the field of teaching and pedagogy. The proficiency in the research skills enables the teachers to work with other individuals for innovating and developing teaching methods. Research skills positively affect the ability of teachers to track developments in their subject area and develop the lessons based on these developments. In addition, teacher research skills are very important for the students for the acquisition of the ability of scientific thinking and scientific processes. All in all, research skills enable teachers to continuously evolve and improve their capabilities (Selvi, 2010).

All in all, the following educational competencies can be used in the training of Indonesian teachers to enhance their ability to work independently:

Table 1
Descriptions of educational competences

Educational Competence	Description
Reading and Writing Proficiency	➢ Must be proficient in critical writing ➢ Ability to deliver lessons in a written and oral manner ➢ Ability to develop easy-to-understand material for the learners
Subject Proficiency and Understanding of Curriculum Objectives	➢ Strong understanding of the subject matter ➢ Command over all the essential concepts of the subject area ➢ Ability to answer queries regarding the concepts of the subject matter
Awareness of Updated Subject Content	➢ Ability to continuously learn and update knowledge of the subject matter ➢ Deliver up-to-date knowledge to the students
Knowledge About Science and Technology	➢ Knowledge of basic science and technology concepts ➢ Thorough understanding of the latest ethnological developments
Application Of Scientific Research Skills	➢ Proficient in research skills ➢ Ability to apply research into teaching practice ➢ Ability to track developments in the subject area

Cognitive Competence

The following factors must be given attention in the training of the teachers in Indonesia to enable them to develop their cognitive competence in independent work:

Ability to Plan Lessons Using Appropriate Teaching Strategies

The ability of the teacher to effectively plan the lesson is contingent upon the cognitive competence of the teacher. Teachers are required to demonstrate high cognitive competence when designing the learning plan (Taylan, 2018). When designing the lesson plan, teachers are required to incorporate a range of appropriate teaching strategies that meet the learning needs of the learners and deliver a meaningful learning experience (Alves et al., 2017). The teachers are also required to ensure the incorporation of such teaching strategies and lessons that positively contribute to the learning outcomes of the students (Ruys et al., 2012). This implies that teachers are required to carefully and critically analyze the lesson plans to deliver a quality learning experience. Another consideration in designing a lesson plan is that it must deliver the learning that not only enable the students to acquire the learning needed to perform well in their exams but the lessons should prepare the students to master the learning competencies that would enable them to progress further in their personal, academic and professional lives (Barak, 2017). Thus, teachers must exercise critical thinking and analysis when planning lessons for the students.

Ability to Manage Lessons According to the Learning Ability of Each Student

A major cognitive competency of the teacher is to adapt the elements of their lesson plans to the specific learning behaviours, style and ability of their students. As per Stigler and Miller (2018) competent teachers demonstrate the ability to plan their lessons in a process-oriented manner. They are able to ensure alignment between the learning dispositions of the particular learning group and the lessons and instructional techniques they have incorporated (Enow & Goodwyn, 2018). On the other hand, teachers that lack such cognitive competence are less adaptable and show recipe-like teaching methods. They fail to align their lessons to the learning styles and abilities of their students (Chizhik & Chizhik, 2018). They tend to have difficulty considering the context of the lesson, predicting the course of the lesson, and deciding on a plan according to a particular group of learners. Thus, it is imperative for the teachers to pay attention to the specific learning styles and abilities of the learners.

Effective Communication Skills

Effective communication skills also demonstrate the educational competence and high qualification of the teachers. Effective communication has been recognized as one of the major qualities of effective teachers. Teachers are required to incorporate effective use of words, gestures, symbols, questions, and other communication methods for effectively sharing information with the learners and for deepening their understanding of the concepts (Khan et al., 2017). It is imperative for the teachers to effectively communicate with the learner and be able to accurately understand the learner's opinions and emotional expressions. Effective teachers are good communicators, proficient in

teaching languages, and masters of teaching information management skills (Okoli, 2017). The communication skills include effective listening, speaking, reading and writing skills. To teach effectively, teachers need to be highly qualified in all of these areas. A teacher proficient in communication skills are better positioned to plan and deliver the lesson to the learners. Moreover, they are able to translate their knowledge of the subject area into lessons that can be easily comprehended by the learners (Muste, 2016). Effective communication skills are crucial for teachers in providing education, managing the classroom, and interacting with students in the classroom. In order to teach according to the student's abilities, teachers need to adopt communication skills that motivate the student's learning process (Bee, 2012).

All in all, the following cognitive competencies can be used in the training of Indonesian teachers to enhance their ability to work independently:

Table 2
Descriptions of cognitive competences

Cognitive Competence	Description
Ability to Plan Lessons Using Appropriate Teaching Strategies	➢ Ability to incorporate a range of appropriate teaching strategies that meet the learning needs of thelearners ➢ Deliver positive learning outcomes for the students ➢ Ability to develop lessons that enable the students to thrive in their personal, academic and professional lives
Ability to Manage Lessons According to the Learning Ability of Each Student	➢ Design lesson plans according to the specific learning behaviors, style and ability of the students ➢ Incorporate a range of teaching strategies taking into account various learning behaviours, styles and abilities of different students
Effective Communication Skills	➢ Effective use of words, gestures, symbols, questions, and other communication methods for effectively sharing information in the classroom ➢ Ability to understand the learner's opinions and emotional expressions ➢ Use of communication that can be easily comprehended by the leaners

The following model is proposed for the development of future teachers' educational and cognitive competence in independent work in Indonesia. The factors on the left side can be incorporated for the development of the educational competence of the teachers while the factors on the left side contribute to the development of the cognitive competence of the teachers thereby enabling them to work in a more independent and self-sufficient manner:

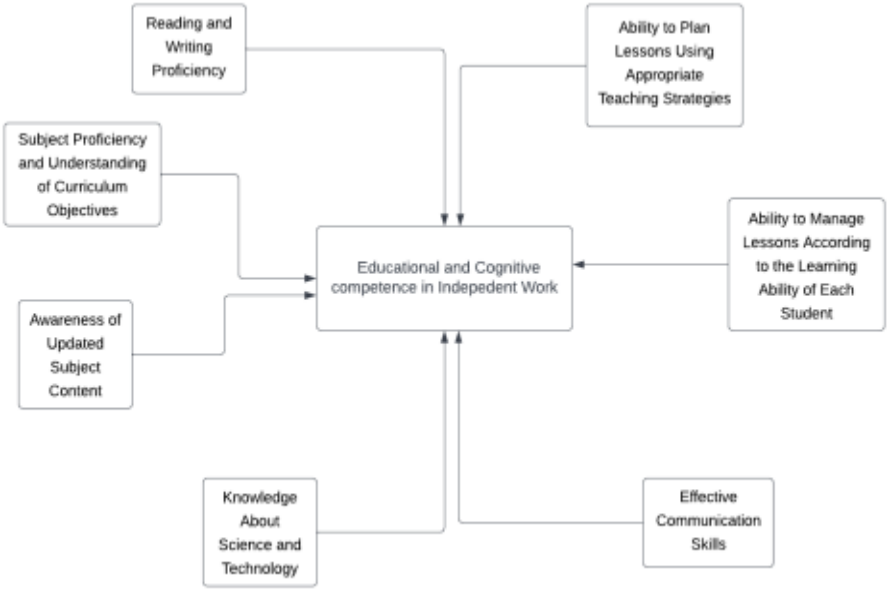

Figure 1
Model for the development of future teacher's educational and cognitive competence in the independent work

CONCLUSION

The training for the future development of the teachers has evolved into a multifaceted process that takes into account a wide variety of competencies that are required for the development of the professional competence of the teachers. The competencies are essential for the development of teachers' professional and cognitive independence, which improves their autonomy in carrying out their roles effectively. In the present times, the training of the teachers is focused on the development of the competence that can enable them to perform effectively and enhance their professional self-sufficiency. It is found that the teacher's self-sufficiency and ability to work independently is contingence upon their competence. In fact, the confidence of the teachers in their professional competence increases their confidence in their working and self-sufficiency. Thus, the ability to do independent work is dependent on the education and cognitive competence of the teachers. In this context, the present paper developed a model for the development of the educational and cognitive competence of the teacher in order to enhance their self-sufficiency in their job role and tasks that ultimately improve their ability to work independently. The model is proposed to be integrated into the training of the teachers in Indonesia to enable them to develop their educational and cognitive competence and improve their ability to work independently.

The researcher conducted a comprehensive review of the extant literature and seminal work to delineate the essential educational and cognitive competencies that must be demonstrated by the teachers to effectively perform their job roles. The model can be used by the teaching and educational professionals as the competence-based criteria for the assessment of the teacher's performance and selection of the appropriate individuals that are the right fit for the teaching roles. The model can also be incorporated into the development of the training program in Indonesia for the development of the future educational and cognitive competence of the teacher. The content of the training can be focused on the competence areas outlined in the findings of the study. Succinctly, the findings of the study delineate five educational and three cognitive competencies that must be mastered by the teachers for their educational and cognitive competence and to enhance their ability to work in an independent manner. The educational competencies include reading and writing proficiency, subject proficiency and understanding of curriculum objectives, awareness of updated subject content, knowledge about science and technology and the application of scientific research skills. The cognitive competencies outlined in the study are the ability to plan lessons using appropriate teaching strategies, the ability to manage lessons according to the learning ability of each student and effective communication skills.

LIMITATIONS

The strengths of the present study are highlighted in its contributions and practical implications. The present study contributes to the extant literature pertaining to the professional competence of the teachers by highlighting the essential educational and cognitive competencies that must be mastered by the teachers for the effective delivery of the lessons and the creation of a meaningful experience for the learners. As established, the findings of the study can be used as the model for future training for the development of the educational and cognitive competencies of the teachers to enable them to work in a self-sufficient and independent manner. The strengths of the present study are also embedded in the fact that the findings of the study have been extracted from credible and reliable secondary data sources. The researcher critically assessed the seminal work for the extractions of findings for the present study. Using a qualitative and review-based design, the present study provides an in-depth view of the research topic.

The present study is also characterized by certain limitation that has affected its findings and results. The present study lacks empirical support for the findings. The effectiveness of the study can be enhanced by supplementing the support of empirical data and testing the model by including participants in the study and collecting primary data. The results of the primary data analysis and secondary data can offer a more comprehensive and clearer image.

RECOMMENDATION

As the present study is based on meta-synthesis of existing literature, it is recommended to the future researcher to conduct more in-depth research by supplementing the support of the empirical data. It is also recommended to test the proposed model to assess the

effectiveness of the model and educational and cognitive competencies in enhancing the teacher's self-sufficiency and enabling them to work in an independent manner. The future researchers can juxtapose the empirical findings with the secondary literature to validate the proposed model. For the educators, it is recommended to take the findings of the study to in account in order to develop contemporary training for the teachers in order to enhance their self-sufficiency.

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