MEDIATING ROLE OF CULTURAL INTELLIGENCE ON THE RELATIONSHIP BETWEEN WORK WELL-BEING AND

TEACHING COMPETENCE OF MATHEMATICS TEACHERS

ABSTRACT

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| --- |
| This study determined the mediating role of cultural intelligence on the relationship between work well-being and teaching competence of Mathematics teachers in selected secondary schools in the Province of Davao Occidental using descriptive-correlational research design with mediation modelling. Adapted survey questionnaires were administered to 117 Mathematics teachers. Data gathered were analyzed using mean, correlation analysis using Pearson r, and mediation analysis through Sobel test. Results showed that the level of work well-being of Mathematics teachers was very high. Likewise, their level of cultural intelligence was high with very high level of teaching competence. Moreover, significant moderate correlation was found between work well-being and cultural intelligence, between work well-being and teaching competence, and between cultural intelligence and teaching competence of Mathematics teachers. Finally, the result revealed significant partial mediation effect of the level of cultural intelligence on the relationship between work well-being and teaching competence of Mathematics teachers. Recommendations were made to maintain and enhance the high levels of work well-being, cultural intelligence, and teaching competence among high school Mathematics teachers. School leaders are urged to foster inclusive, supportive environments and invest in ongoing professional development focused on cultural intelligence, integrating these into school plans. Future research is also encouraged to expand the scope and use advanced methods to further explore the links among these key constructs. Original Research Article. |

*Keywords: cultural intelligence, work well-being, teaching competence, mediation analysis, Mathematics teachers*

1. INTRODUCTION

Teachers play a vital role not only in delivering lessons but also in shaping learners’ lives by nurturing the knowledge, skills, and values that help them succeed within and beyond the classroom. This crucial role demands not just teaching competence but also the ability to navigate the increasingly diverse and multicultural realities of today’s educational settings. In the Philippines, where students come from varied cultural and social backgrounds, teachers face both the challenge and the opportunity to create learning spaces that respect and celebrate these differences. To do this effectively, teachers must maintain their well-being physically, emotionally, and mentally so they can implement teaching strategies that bring out the best in every learner. However, the demands of teaching often lead to stress and burnout, which can negatively impact teachers’ performance and their ability to create supportive classrooms.

Research highlights that cultural intelligence is essential for teachers to manage diverse classrooms effectively. For instance, Peköz and Gürşimşek (2020) found that teachers with higher cultural intelligence engage learners from diverse backgrounds more successfully, while Lee and Wee (2021) showed that cultural intelligence helps reduce conflict and fosters collaboration, enabling more inclusive and respectful learning environments. Al-Makhamreh et al. (2022) further emphasized that globalization demands teachers embrace inclusivity, adapt to cultural differences, and ensure every learner feels valued. Meanwhile, teacher well-being has been linked to effective teaching, as Dearing (2020) noted that teachers who experience well-being are more capable of facilitating meaningful learning experiences, while Hirschle and Gondim (2020) found that high stress levels can hinder performance. Teachers’ cultural sensitivity, supported by tolerant and adaptable school cultures, also plays a key role in their ability to relate to students and use multicultural teaching strategies (Garcia & Pantao, 2021). Institutional support is critical; the Department of Education (2020) underscored the importance of teacher well-being, especially during crises like the pandemic, and Casanova et al. (2022) confirmed that emotional and social support significantly boosts teachers’ well-being and effectiveness.

Despite these insights, there remains a clear gap in understanding how cultural intelligence influences the relationship between teachers’ well-being and their teaching competence, especially among Mathematics teachers. This gap is particularly evident in Davao Occidental, where localized research on this intersection is limited. Therefore, this study proposes to investigate how cultural intelligence can enhance teachers’ well-being and competence in teaching Mathematics. By exploring this relationship, the study aims to provide valuable insights that can inform professional development programs, school improvement plans, and policies to support teachers in creating nurturing, inclusive learning environments where every learner feels respected and empowered. Addressing this gap is crucial, as supporting teachers’ cultural intelligence and well-being can directly impact their competence and ultimately improve educational outcomes for learners in diverse Philippine classrooms.

**2.** **OBJECTIVES**

This study determined the mediating role of cultural intelligence on the relationship between work well-being and teaching competence of Mathematics teachers in selected secondary schools in the Province of Davao Occidental.

Specifically, this study aimed to:

1. Determine the level of work well-being of high school Mathematics teachers, in terms of:

1.1 positivism;

1.2 job satisfaction;

1.3 organizational harmony; and

1.4 organizational support.

2. Determine the level of cultural intelligence of high school Mathematics teachers, in terms of:

2.1 metacognitive cultural intelligence;

2.2 cognitive cultural intelligence;

2.3 motivational cultural intelligence; and

2.4 behavioral cultural intelligence.

3. Determine the level of teaching competence of high school Mathematics teachers, in terms of:

3.1 professional knowledge;

3.2 professional teaching;

3.3 personal and professional attributes; and

3.4 professional communities.

4. Determine the significant relationship between the levels of work well-being and cultural intelligence of Mathematics teachers.

5. Determine the significant relationship between the levels of work well-being and teaching competence of Mathematics teachers.

6. Determine the significant relationship between the levels of cultural intelligence and competence of high school Mathematics teachers.

7. Determine whether the level of cultural intelligence significantly mediate the relationship between the levels of work well-being and teaching competence of high school Mathematics teachers.

3. MATERIALS AND METHODS

Research Design

This study used a descriptive-correlational survey research design. It is descriptive because it aimed to gather information about the current status of work well-being, cultural intelligence, and teaching competence among Mathematics teachers. It simply described the characteristics and conditions as they naturally occur.

At the same time, it is correlational because it examined the relationships between these variables without influencing them. The study aimed to determine whether there is a significant association among work well-being, cultural intelligence, and teaching competence. Mediation modeling was also employed to explain how cultural intelligence acts as a mediator between work well-being and teaching competence.

**Research Instrument**

The research instruments used in this study were adapted from various authors.

Part I of the survey questionnaire measured the level of cultural intelligence among Mathematics teachers. The questionnaire was adopted from the Cultural Intelligence Scale (CQS) by Yang (2012) and is composed of 20 statements, distributed across four dimensions: Metacognitive Cultural Intelligence with four statements, Cognitive Cultural Intelligence with six statements, Motivational Cultural Intelligence with five statements, and Behavioral Cultural Intelligence with five statements. Respondents answered using a five-point Likert scale, with 1 indicating "strongly disagree" and 5 indicating "strongly agree."

Part II of the survey questionnaire assessed the level of work well-being of high school teachers in the new normal, focusing on positivism, job satisfaction, organizational harmony, and organizational support. The questionnaire was patterned after the Well-Being at Work Scale by Demo and Paschoal (2016) and the Work-Related Wellbeing Questionnaire by Orsila et al. (2011), revised by Cozo (2019). It consists of 26 statements: eight for positivism, six for job satisfaction, six for organizational harmony, and six for organizational support. Responses were recorded on a five-point Likert scale, with 5 indicating "strongly agree" and 1 indicating "strongly disagree."

Part III of the survey questionnaire evaluated the teaching competence of Mathematics teachers based on professional knowledge, professional teaching, personal and professional attributes, and professional communities. This section was adapted from the Southeast Asia Regional Standards for Mathematics Teachers (SEARS-MT) developed by the Southeast Asian Ministers of Education Organization Regional Centre for Education in Science and Mathematics (SEAMEO RECSAM, 2014), and included 37 items. Respondents answered using a five-point Likert scale, ranging from "strongly agree" (5) to "strongly disagree" (1).

To ensure the appropriateness of the questionnaire for the current context, the researcher conducted content and construct validation, with selected experts in the field reviewing the instrument. Comments, recommendations, and suggestions provided by the experts were incorporated into the final version of the questionnaire. After validation, a pilot test was conducted to assess the instrument’s reliability by calculating the Cronbach’s alpha coefficient.

**Respondents of the Study**

The respondents of this study were Mathematics teachers from 15 public secondary schools across the five municipalities of Davao Occidental, selected through complete enumeration. A total of 117 Mathematics teachers participated as respondents, as shown in Table 1. These teachers were chosen based on the following criteria: (1) currently handling any Mathematics subject in either Junior or Senior High School; (2) having taught the subject for at least one year, regardless of sexual orientation, gender identity, educational attainment, civil status, religious affiliation, or ethnicity; and (3) willingness to participate as a respondent in the study.

Table 1. Sample Size Distribution of Mathematics Teachers in Selected Public Secondary Schools in the Province of Davao Occidental.

|  |  |  |
| --- | --- | --- |
|  | **NAME OF SCHOOLS** | **SAMPLE SIZE** |
| 1 | Alberto Olarte Sr. National High School | 5 |
| 2 | Basiawan National High School | 6 |
| 3 | B’laan National High School | 3 |
| 4 | Benjamin Velasco Bautista Sr. National High School | 6 |
| 5 | Demolok Valley National High School | 7 |
| 6 | Don Marcelino National High School | 7 |
| 7 | Fishing Village Comprehensive National High School | 3 |
| 8 | Heracleo Casco Memorial National High School | 15 |
| 9 | Jose Abad Santos National High School | 16 |
| 10 | Kalbay National High School | 9 |
| 11 | Lawa National High School | 8 |
| 12 | Mariano Peralta National High School | 19 |
| 13 | Sta. Maria National High School | 3 |
| 14 | Ticulon National High School | 4 |
| 15 | Tubalan Comprehensive National High School | 6 |
|  | Total | 117 |

**Data Gathering**

In gathering the data for this study, the following steps served as guide of the researcher:

1. A formal letter, along with an endorsement from the Dean of the Graduate School, was submitted to the Schools Division Superintendent of the Division of Davao Occidental to request permission and approval for the conduct of the study.
2. Letters were also sent to the different school heads of the identified secondary schools along with the permission and authorization letters from the Schools Division Superintendent to seek for approval and endorsement to conduct the study in their respective schools.
3. In gathering data through survey questionnaires, the researcher consistently adhered to the required health and safety protocols to ensure the well-being of all participants. To minimize physical contact, an online survey questionnaire was created using Google Forms and distributed to the identified Mathematics teachers through shared links for them to accomplish.
4. All collected data from the identified respondents were treated with utmost respect and confidentiality in accordance with research ethics. The data gathered were tallied, collated, and tabulated for easier processing and analysis. Tables and charts were created to visually present the gathered data. The processed data were analyzed using appropriate statistical tools with the aid of statistical software.

4. results and discussion

**4.1 Level of Work Well-Being of High School Mathematics Teachers**

**Work Well-being (Positivism)**

The mean score for work well-being in terms of positivism was 4.35, which is interpreted as **very high.** This finding suggests that Mathematics teachers consistently demonstrate a strong sense of work well-being, particularly in terms of maintaining a positive outlook. These teachers regularly experience both physical and mental well-being in the workplace, largely attributed to their optimistic attitude toward their professional responsibilities. Such a positive disposition enables teachers to inspire and motivate students to pursue academic excellence, thereby fostering a supportive and empowering learning environment that enhances student potential. Furthermore, optimistic teachers are more resilient, allowing them to effectively navigate setbacks and challenges. As emphasized by Edara et al. (2021), the optimistic and positive disposition of Mathematics teachers plays a significant role in enhancing their contentment and overall well-being. Similarly, Dong and Xu (2022) identified a strong relationship between teachers’ levels of optimism and commitment and their engagement at work. They concluded that committed and optimistic teachers are more likely to be effective and actively engaged in their instructional duties.

**Work Well-being (Job Satisfaction)**

The level of work well-being of high school Mathematics teachers in terms of job satisfaction is shown in Table 3. The mean rating for the work well-being in terms of job satisfaction was 4.35 interpreted as very high. This means that the work well-being of Mathematics teachers in terms of job satisfaction is observed and is always manifested. Mathematics teachers always felt and experienced physical and mental well-being at work particularly being satisfied with their current teaching works. This implies that very high job satisfaction among teachers signifies a positive and fulfilling work experience. It is often associated with a strong sense of purpose, passion, positive relationships, and continuous growth. This result substantiates the claim of Cozo (2019) that the well-being an individual particularly among teachers in the workplace is generally dependent on various factors that are manageable by individuals. Moreover, Slemp et al. (2024) claims that teachers can enhance their well-being by satisfying their needs for autonomy, competence, and relatedness, and by optimizing their motivation for work. This means that to ensure one’s well-being in the workplace, one should be able to manage well these factors to guarantee teachers’ productivity, job satisfaction, and better work performance

**Work Well-being (Organizational Harmony)**

As shown in Table 4, the mean rating of work well-being in terms of organizational harmony was 4.33, indicating a very high level of work well-being in terms of organizational harmony. This suggests that Mathematics teachers consistently experience and demonstrate a strong sense of organizational harmony in their workplace. Such a high level of harmony reflects a positive, collaborative, and supportive working environment. This finding supports the claim of Ibrahim et al. (2020), who stated that individuals tend to exhibit strong commitment and productivity when the organization fosters a positive atmosphere and provides concrete support for employee well-being. Similarly, See et al. (2020) emphasized that harmonious working relationships contribute significantly to individual well-being, enhancing teachers’ commitment and dedication, which in turn lead to improved work performance and productivity.

**Work Well-being (Organizational Support)**

The level of work well-being of high school Mathematics teachers in terms of organizational support is presented in Table 5. The mean score was 4.36, which is interpreted as very high. This indicates that the work well-being of Mathematics teachers, in terms of organizational support, is consistently observed and regularly manifested. In the context of teaching, a very high level of organizational support implies a culture of continuous professional growth, collaboration, adequate resources, manageable workloads, emotional well-being support, effective communication, and recognition. These results corroborate the findings of Dabrowski (2020), who emphasized that organizational support is essential in ensuring the physical and mental well-being of teachers. He highlighted the importance of providing robust resources, systems, and structures to assist and empower educators in their professional roles. Suppa (2019) also emphasized that enhancing teacher well-being involves supportive supervision from school administrators to ensure their welfare and safety. This perspective was further supported by the Department of Education (2022), which released the School Effectiveness Toolkit to promote a positive response to curriculum implementation, despite ongoing global challenges.

**Work Well-being (Overall):** The grand mean of 4.35 suggests that the work well-being of Mathematics teachers is observed and is always manifested. Mathematics teachers always felt and experienced well-being in their workplace. The results imply a positive, satisfying, and rewarding experience in the work environment, leading to increased job satisfaction, positive emotions, motivation, productivity, and personal growth. Results supports the findings of Pael (2020) that teachers were able to adhere to good health practices enabling them to have very high level of wellbeing. However, the study of Billote et al. (2022) revealed that teachers during pandemic experienced moderate level of anxiety and a normal level of depression while affected by the occupational stress. Lugue and Galicia (2021) disclosed that teachers experienced average level of well-being due to existing pandemic and crisis situation. With this, Ortillo and Ancho (2021) highlighted the significance of crafting plans for wellness programs to guarantee not only the health and wellness of teachers but more about the wellness of the students.

**Table 2. Level of Work Well-being of High School Mathematics Teachers**

|  |  |  |
| --- | --- | --- |
| **Indicators** | **Mean** | **Description** |
| Positivism | 4.35 | Very High |
| Job Satisfaction | 4.35 | Very High |
| Organizational Harmony | 4.33 | Very High |
| Organizational Support | 4.36 | Very High |
| **Work Well-Being (Overall)** | **4.35** | **Very High** |

**4.2 Cultural Intelligence of High School Mathematics Teachers**

**Cultural Intelligence (Metacognitive)**

The mean rating for the level of cultural intelligence of high school Mathematics teachers in terms of metacognitive cultural intelligence is 4.02, which is described as high. This indicates that the behaviors and attitudes related to metacognitive cultural intelligence are manifested and observed on many occasions and are frequently felt and occurring. This suggests that individuals possess a strong awareness and understanding of their own cultural assumptions, biases, and perspectives, as well as the ability to reflect on and adjust their thinking and behavior in cross-cultural interactions. Such intelligence equips individuals with the mindset and skills necessary to navigate cultural diversity effectively, promote inclusivity, and build meaningful connections across cultures. The results of the study support the findings of Ang et al. (2020), who emphasized that metacognitive cultural intelligence centers on a person’s cultural awareness and their understanding of the importance of interacting within various socio-cultural contexts. It also involves the ability to adapt and utilize appropriate strategies and methods to thrive and succeed in diverse environments. Furthermore, the findings suggest that teachers should be more mindful and deliberate in applying their cultural knowledge when interacting with individuals from different cultural backgrounds. Pogosyan (2022) highlighted that this mental capacity involves acquiring and evaluating knowledge related to culture. Metacognitive cultural intelligence is particularly valuable for individuals working in diverse teams or global settings, as it enables leaders to foster inclusive environments, leverage the strengths of diverse team members, and lead multicultural teams effectively.

**Cultural Intelligence (Cognitive)**

The level of cultural intelligence of high school Mathematics teachers in terms of cognitive cultural intelligence is presented in Table 3. The mean rating is **3.68**, which is described as **high**. This implies that individuals possess strong cognitive abilities and skills that enable them to understand and effectively navigate cultural diversity. The results of the study substantiate the statement of Khalid et al. (2022) that a diverse learning environment significantly enhances students' understanding of cultural values, ethical awareness, and global community issues. Likewise, a strong cultural awareness, knowledge acquisition, cognitive flexibility, and problem-solving abilities enables individuals to navigate cultural diversity with sensitivity, adaptability, and a global mindset. Teachers need to develop deep cultural awareness and tolerance in order to better appreciate diversity of learners while promoting inclusivity in education. Furthermore, Yeşil (2022) highlighted that individuals with a comprehensive understanding of cultural norms, practices, and conventions are more adept at navigating intercultural interactions, thereby fostering an inclusive organizational environment.

**Cultural Intelligence (Motivational)**

The level of cultural intelligence of high school Mathematics teachers in terms of motivational cultural intelligence has a mean rating of 3.96, which is described as high. This indicates that the statements describing this indicator are frequently manifested, observed, and experienced. It implies that individuals possess strong motivation and drive to engage in cross-cultural interactions, learn about other cultures, and adapt their behavior to effectively navigate diverse cultural contexts. These results align with the findings of Pogosyan (2022), who emphasized that motivational cultural intelligence centers on the role of cultural identity in an individual's growth and development, enabling them to thrive within the society to which they belong. Moreover, Tesfaye et al. (2025) found that teachers with higher cultural intelligence particularly in motivational aspects also reported greater academic self-efficacy, suggesting that cultural intelligence contributes to increased confidence in academic settings.

**Cultural Intelligence (Behavioral)**

As shown in the table, the mean rating for the level of cultural intelligence of high school Mathematics teachers in terms of behavioral cultural intelligence is 3.81, which is described as high. This indicates that the statements describing this indicator are frequently manifested, observed, and experienced. It implies that individuals possess strong skills and abilities to effectively adapt their behavior in cross-cultural situations, enabling them to work successfully despite existing cultural differences and variations. This involves understanding and adjusting one’s actions, including verbal and non-verbal communication, to navigate diverse cultural backgrounds and contexts effectively. Pogosyan (2022) emphasized that this element of cultural intelligence enhances communication and helps individuals manage cultural shocks and surprises. Developing tolerance for cultural differences such as modifying facial expressions to be acceptable across cultures is essential. In addition, Yari et al. (2020) asserted that employees with high behavioral cultural intelligence tend to demonstrate culturally appropriate behaviors, which improves conflict management and cooperation in cross-cultural workplace settings.

**Cultural Intelligence (Overall)**

The overall mean rating of 3.87 indicates that cultural intelligence is frequently demonstrated among high school Mathematics teachers. This suggests they understand diverse cultures, use culturally responsive strategies, communicate effectively across cultures, build positive relationships, and work well in diverse teams. These findings support Hudalla’s (2024) claim that cultural intelligence enables effective cross-cultural functioning and promotes inclusive environments.

All cultural intelligence indicators were rated high, with mean scores of 4.02 (metacognitive), 3.96 (motivational), 3.81 (behavioral), and 3.68 (cognitive). This underscores the need for inclusive classrooms that foster students’ academic and socio-emotional growth and global readiness. Sternberg et al. (2022) further emphasize that culturally intelligent teachers manage diverse classrooms more effectively, addressing differences in race, language, ethnicity, and nationality.

**Table 3.** Level of Cultural Intelligence of High School Mathematics Teachers

|  |  |  |
| --- | --- | --- |
| **Indicators** | **Mean** | **Description** |
| 1. Metacognitive Cultural Intelligence | 4.02 | High |
| 2. Cognitive Cultural Intelligence | 3.68 | High |
| 3. Motivational Cultural Intelligence | 3.96 | High |
| 4. Behavioral Cultural Intelligence | 3.81 | High |
| **Overall Mean** | **3.87** | **High** |

**4.3 Teaching Competence of High School Mathematics Teachers**

**Teaching Competence (Professional Knowledge)**

The level of teaching competence of high school Mathematics teachers in terms of professional has a mean rating of 4.42, which is described as outstanding. This indicates that teacher performance consistently exceeds expectations and demonstrates a high level of proficiency across various indicators. It reflects strong skills, initiative, and consistent professional performance. These teachers exhibit clear self-motivation and initiative in their roles. The results suggest that they have mastery of subject matter, engage in effective instructional planning, apply differentiated instruction, utilize accurate assessment practices, address student misconceptions, and promote creative and critical thinking. They also show a strong commitment to ongoing personal and professional development and foster a positive classroom climate. These findings support the claims of Hudalla (2024) and Khalid et al. (2022), who emphasized that a fundamental aspect of teaching competence is a solid conceptual understanding of the subject. From this foundation, teachers can effectively build procedural knowledge and deliver meaningful instruction. Teachers with outstanding professional knowledge possess the expertise and skills needed to deliver high-quality education, facilitate student learning, and inspire a lifelong love of learning in their students.

**Teaching Competence (Professional Teaching)**

The level of teaching competence of high school Mathematics teachers in terms of professional teaching is presented in Table 4. The mean rating is 4.34, which is described as outstanding. This suggests that teacher behavior consistently exceeds expectations and is highly proficient in the different indicators that are expected on them. This reflects a high level of skill, initiative, and consistent professional performance. These teachers show clear initiative and self-motivation in their roles. This finding suggests effective instructional strategies, student-centered approach, differentiated instruction, strong classroom management skills, assessment and feedback practices, technology integration, collaboration and professional growth, and positive teacher-student relationships. Results corroborates the results of the study of Edara et al. (2021) and Yari et al. (2020) that teaching competence is the possession of sufficient skills and undertaking of teachers to satisfactorily deliver classroom instruction with the optimal learning that the students may get. Teachers with outstanding professional teaching have the knowledge, skills, and practices to create engaging, inclusive, and effective learning environments that promote student success and growth.

**Teaching Competence (Professional Attributes)**

As shown in the table, the result for the level of teaching competence of high school Mathematics teachers in terms of professional attributes revealed a mean rating of 4.40, which is described as outstanding. This indicates that teacher behavior consistently exceeds expectations and reflects a high level of proficiency across various indicators. Teachers consistently demonstrate strong performance in terms of skills, abilities, attributes, initiative, and productivity. Their self-direction and professional autonomy are clearly evident. This suggests that the teachers exhibit a passion for teaching, a strong work ethic, excellent communication skills, empathy, adaptability, flexibility, reflective practice, leadership, collaboration, and serve as positive role models. The results of the study support the assertion by Stronge (2018) that 21st-century teaching competence requires educators to be adaptable, continuously acquire new skills, and demonstrate exceptional personal characteristics that enhance their effectiveness as learner-centered educators. Teachers with outstanding professional attributes inspire students, foster a nurturing and engaging learning environment, and leave a lasting impact on their students’ lives. Additionally, Attar (n.d.) emphasized that professional attributes such as adaptability, leadership, and reflective practice significantly enhance teaching effectiveness.

**Teaching Competence (Professional Communities)**

The level of teaching competence of high school Mathematics teachers in terms of professional communities has a mean score of 4.36, described as outstanding. This indicates that teachers consistently exceed expectations and demonstrate a high level of proficiency across the various indicators. It reflects strong skills, initiative, and consistent professional performance, with teachers showing clear self-motivation in their roles. This finding suggests that these teachers benefit from strong networking and collaboration, continuous learning and professional development, access to resources and support, advocacy and influence, professional recognition and validation, a mindset geared toward lifelong learning, and opportunities for mentorship and leadership. These results support the claims of Schlaegel et al. (2021) that professional teachers need a strong and consistent practice of professional ethics and active participation in professional development programs and activities. By engaging in various professional communities and organizations, teachers strengthen their professional competence, expand their professional networks, and foster their overall growth as educators.

**Teaching Competence (Overall)**

The overall mean rating of 4.38 suggests that the work well-being of Mathematics teachers is observed and is always manifested. Mathematics teachers always felt and experienced well-being in their workplace. The results imply a positive, satisfying, and rewarding experience in the work environment, leading to increased job satisfaction, positive emotions, motivation, productivity, and personal growth. These results support the findings of Pael (2020) that teachers were able to adhere to good health practices enabling them to have very high level of wellbeing. However, the study of Billote et al. (2022) revealed that teachers during pandemic experienced moderate level of anxiety and a normal level of depression while affected by the occupational stress. Lugue and Galicia (2021) disclosed that teachers experienced average level of well-being due to existing pandemic and crisis situation. With this, Ortillo and Ancho (2021) highlighted the significance of crafting plans for wellness programs to guarantee not only the health and wellness of teachers but more about the wellness of the students.

**Table 4.** Level of Teaching Competence of High School Mathematics Teachers

|  |  |  |
| --- | --- | --- |
| **Indicators** | **Mean** | **Description** |
| 1. Professional Knowledge | 4.42 | Outstanding |
| 2. Professional Teaching | 4.34 | Outstanding |
| 3. Professional Attributes | 4.40 | Outstanding |
| 4. Professional Communities | 4.36 | Outstanding |
| **Overall Mean** | **4.38** | **Outstanding** |

**Relationship Between the Levels of Work Well-Being and Cultural Intelligence of Mathematics Teachers**

Table 5 presents the results of the test of relationship between work well-being and cultural intelligence among high school Mathematics teachers. A moderate positive correlation was found between cultural intelligence and positivism (r = 0.479, *P* = 0.000), as well as job satisfaction (r = 0.440, *P* = 0.000). This suggests that as teachers' sense of positivism and job satisfaction increase, their levels of cultural intelligence also improve. Given that the p-values are below the 0.05 significance level, the null hypotheses are rejected, indicating statistically significant relationships.

In addition, low positive correlations were observed between cultural intelligence and both organizational harmony (r = 0.298, *P*= 0.002) and organizational support (r = 0.365, *P* = 0.000). These findings imply that enhancements in the school environment such as harmonious working relationships and perceived support are linked to slight improvements in teachers’ cultural intelligence. These relationships are also statistically significant.

Overall, the r-value of 0.460 indicates a moderate positive relationship between the level of work well-being and cultural intelligence among high school Mathematics teachers. With a p-value of 0.000, the relationship is statistically significant; thus, the null hypothesis is rejected. These findings are consistent with previous studies (Li & Middlemiss, 2022; Yang & Chang, 2022; Yeşil, 2022) highlighting the positive impact of cultural intelligence on teacher well-being. As Yari et al. (2020) emphasized, educators with higher cultural intelligence are more adept at understanding and respecting cultural diversity, adapting flexibly to cross-cultural situations, and fostering collegial relationships contributing to a more supportive and inclusive school environment.

**Table 5.** Relationship Between the Levels of Work Well-Being and Cultural Intelligence of Mathematics Teachers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **R-Value** | **Description** | **P-Value** | **Interpretation** |
| Positivism | 0.479 | Moderate Correlation | 0.000 | Significant |
| Job Satisfaction | 0.440 | Moderate Correlation | 0.000 | Significant |
| Organizational Harmony | 0.298 | Low Correlation | 0.002 | Significant |
| Organizational Support | 0.365 | Low Correlation | 0.000 | Significant |
| **Overall Mean** | **0.460** | **Moderate Correlation** | **0.000** | **Significant** |

**4.4 Relationship Between the Levels of Work Well-Being and Teaching Competence of Mathematics Teachers**

Table 6 presents the relationship between work well-being and teaching competence among high school Mathematics teachers. A low positivecorrelation was found between positivism and teaching competence (r = 0.393, *P* = 0.000), suggesting that higher levels of optimism are associated with slight improvements in teaching competence. Since the p-value is below 0.05, the relationship is statistically significant.

Moderate positive correlations were observed between teaching competence and the following work well-being factors: job satisfaction (r = 0.537, *P* = 0.000), organizational harmony (r = 0.510, *P* = 0.002), and organizational support (r = 0.502, *P* = 0.000). These results indicate that as teachers feel more satisfied, supported, and work in a harmonious environment, their teaching competence improves moderately. All relationships are statistically significant.

The overall Pearson r value of 0.574 confirms a moderate positive relationship between the general level of work well-being and teaching competence (*P* = 0.000). Thus, the null hypothesis is rejected, affirming that higher work well-being significantly contributes to better teaching competence among high school Mathematics teachers.

The results substantiate the findings of the study of Dearing (2020) that with improved well-being, teachers are able to teach the learners effectively, and provide them with the best learning experiences which reflects their competence in teaching. Thus, Slemp et al. (2024) emphasized the importance of well-being in teacher’s competence and performance. Correspondingly, Hirschle and Gondim (2020) underscored that teachers experiencing stress and burnout may be physically, mentally and emotionally unwell. They, therefore shows symptoms of becoming unproductive in handling the students since well-being affect both the competence and performance of individuals. Moreover, the study of Edara et al. (2021) revealed that teacher well-being and contentment are of primary importance in order to guarantee teaching effectiveness. Also, Slemp et al. (2024) added that workplace well-being has a positive effect on the overall job satisfaction and work performance of employees. While Edara et al. (2021) disclosed that the well-being of individuals includes the supportive supervision of school administration to warrant teachers’ welfare and safety, thereby helping them to teach better in their fields of expertise.

**Table 6.** Relationship Between the Levels of Work Well-Being and Teaching Competence of Mathematics Teachers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **R-Value** | **Description** | **P-Value** | **Interpretation** |
| Positivism | 0.393 | Low Correlation | 0.000 | Significant |
| Job Satisfaction | 0.537 | Moderate Correlation | 0.000 | Significant |
| Organizational Harmony | 0.510 | Moderate Correlation | 0.002 | Significant |
| Organizational Support | 0.502 | Moderate Correlation | 0.000 | Significant |
| **Overall Mean** | **0.574** | **Moderate Correlation** | **0.000** | **Significant** |

**4.5 Relationship Between the Levels of Cultural Intelligence and Teaching Competence of High School Mathematics Teachers**

Table 7 presents the relationship between cultural intelligence and teaching competence among high school Mathematics teachers. A moderate positive correlation was found between metacognitive cultural intelligence and teaching competence (r = 0.552, *P* = 0.000), indicating that increased cultural awareness and reflective thinking are associated with improved teaching competence. Similarly, motivational cultural intelligence also showed a moderate correlation (r = 0.557, *P*= 0.002), suggesting that teachers with a strong drive to engage across cultures demonstrate higher teaching competence.

In contrast, low positive correlations were observed for cognitive (r = 0.368, *P* = 0.000) and behavioral (r = 0.363, *P* = 0.000) dimensions of cultural intelligence, indicating that knowledge and culturally adaptive behavior contribute to teaching competence to a lesser extent, but remain statistically significant.

The overall Pearson r value of 0.587 reflects a moderate positive relationship between the levels of cultural intelligence and teaching competence. With all *P*-values below 0.05, the null hypotheses are rejected, confirming that cultural intelligence significantly influences the teaching competence of high school Mathematics teachers.

The results conform with the findings of the study of Yang and Chang (2022) that due to globalization and internationalization interests, education becomes a crucial avenue for cultural meetup, making it an unavoidable routine in the landscape of schooling. To become effective, teachers need to surpass the struggles of diversity and embrace inclusivity to enhance their competence regardless of their race, ethnicity, gender, nationality and culture. In fact, Peköz and Gürşimşek (2020) stressed that increasing the cultural intelligence provide intricate advantage on the teaching skills and competence of teachers. They highlighted that having strong knowledge and understanding on cultural backgrounds of learners provide strong pedagogical and instructional implications to teachers especially in finding the best teaching approach, strategy or method to teach the students with diverse cultural needs.

**Table 7.** Relationship Between the Levels of Cultural Intelligence and Competence of High School Mathematics Teachers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **R-Value** | **Description** | **P-Value** | **Interpretation** |
| Metacognitive Cultural Intelligence | 0.552 | Moderate Correlation | 0.000 | Significant |
| Cognitive Cultural Intelligence | 0.368 | Low Correlation | 0.000 | Significant |
| Motivational Cultural Intelligence | 0.557 | Moderate Correlation | 0.002 | Significant |
| Behavioral Cultural Intelligence | 0.363 | Low Correlation | 0.000 | Significant |
| **Overall Mean** | **0.587** | **Moderate Correlation** | **0.000** | **Significant** |

**4.6 Mediation Effect of Cultural Intelligence on the Relationship Between the Levels of Work Well-Being and Teaching Competence of High School Mathematics Teachers**

Table 8 presents the mediation analysis examining the role of cultural intelligence in the relationship between work well-being and teaching competence among high school Mathematics teachers. The results show that work well-being significantly influences cultural intelligence, with a regression coefficient of 0.80 (*P* < 0.05), indicating that a one standard deviation increase in work well-being corresponds to a 0.80 increase in cultural intelligence. In turn, cultural intelligence significantly affects teaching competence, with a regression coefficient of 0.24 (*P* < 0.05), suggesting that higher levels of cultural intelligence are associated with improved teaching competence.

These findings are consistent with those of Li and Middlemiss (2022), Yang and Chang (2022), and Yeşil (2022), who emphasized the positive impact of cultural intelligence on well-being. Yari et al. (2020) highlighted that culturally intelligent teachers are more adept at navigating cross-cultural environments, fostering stronger professional relationships and promoting a healthier workplace atmosphere. Similarly, Peköz and Gürşimşek (2020) found that increased cultural intelligence enhances teachers’ adaptability and instructional effectiveness in diverse classroom settings.

Moreover, the total effect which is the sum of both direct and indirect effects has a regression coefficient of 0.71, with an indirect effect of 0.19. The ratio index, calculated by dividing the indirect effect by the total effect (0.19 ÷ 0.71), is 26.76%. This indicates that approximately 26.76% of the total effect of work well-being (IV) on teaching competence (DV) is mediated through cultural intelligence (MV), while the remaining 73.24% of the total effect is the direct effect of work well-being (IV) on the teaching competence (DV) of high school Mathematics teachers.

These results confirm that while work well-being directly enhances teaching competence, a meaningful portion of its impact operates through the development of cultural intelligence.

**Table 8.** Mediation Effect Analysis of Cultural Intelligence on the Relationship Between the Levels of Work Well-Being and Teaching Competence of High School Mathematics Teachers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Effect** | Estimates | SE | Lower CI | Upper CI |
| **Indirect Effect** | 0.19\* | 0.06 | 0.09 | 0.31 |
| Work Well-Being ⟶ Cultural Intelligence | 0.80\* | 0.11 | 0.58 | 1.02 |
| Cultural Intelligence ⟶ Teaching Competence | 0.24\* | 0.06 | 0.13 | 0.36 |
| **Direct Effect** |  |  |  |  |
| Work Well-Being ⟶ Teaching Competence | 0.52\* | 0.08 | 0.36 | 0.67 |
| Total Effects | 0.71\* | 0.07 | 0.57 | 0.84 |

Legend: \*p<0.05; SE=Standard Error; CI= Confidence Interval

Since the direct effect of work well-being (IV) on the teaching competence (DV) of high school Mathematics teachers is nonzero and statistically significant, the mediation exhibited by cultural intelligence is classified as partial mediation. This result implies that work well-being remains a significant predictor of teaching competence. However, the teachers' level of cultural intelligence also has a substantial influence on their competence. Therefore, by consistently nurturing and strengthening cultural intelligence, the teaching competence of high school Mathematics teachers can be further enhanced, reinforcing the positive impact of work well-being on teaching performance.

Cultural Intelligence

0.80 (0.11)

0.24 (0.06)

Work Well-Being

Teaching Competence

0.52 (0.80)

**Figure 1.** The Mediating Effect of Cultural Intelligence on the Relationship Between Work

Well-Being and Teaching Competence of High School Mathematics Teachers.

To check whether the mediation exists and is significant, the Sobel Test was employed, with results presented in Table 9. The analysis revealed an indirect effect of work well-being on cultural intelligence (0.80, SE = 0.11), and of cultural intelligence on teaching competence (0.24, SE = 0.06). Since the p-value is less than 0.05, the null hypothesis is rejected, confirming that cultural intelligence significantly mediates the relationship between work well-being and teaching competence among high school Mathematics teachers, as illustrated in Figure 1.

This finding suggests that an increased understanding of cultural context, improved communication and connection with students, culturally responsive instructional strategies, increased empathy and sensitivity, enhanced teaching competence, and a focus on promoting equity and inclusion. Emphasizing the development of cultural intelligence among Mathematics teachers can contribute to their effectiveness in culturally diverse classrooms and ultimately lead to improved student learning outcomes.

These results are consistent with the findings of Li and Middlemiss (2022), who emphasized that cultural intelligence enhances individuals’ adaptability and interpersonal effectiveness across diverse cultural contexts. Gandhi and Sankhian (2020) also found that teachers with higher cultural intelligence more easily adapt to new cultural environments and exhibit greater psychological well-being. Similarly, Yang and Chang (2022) reported that metacognitive and motivational dimensions of cultural intelligence are strong predictors of psychological well-being. Moreover, Schlaegel et al. (2021) demonstrated that cultural intelligence mediates the relationship between personality traits and work-related outcomes, showing incremental validity as a key predictor of performance in multicultural settings.

**Table 9.** Summary of Sobel test of Mediation

|  |  |  |  |
| --- | --- | --- | --- |
| **Indirect Effect** | **Estimates** | **SE** | **P-value** |
| Work Well-Being ⟶ Cultural Intelligence | 0.80 | 0.11 | 0.000 |
| Cultural Intelligence ⟶ Teaching Competence | 0.24 | 0.06 |

1. **CONCLUSIONS AND RECOMMENDATIONS**
   1. Conclusion

Based on the findings presented, the following are the conclusions drawn:

1. The level of work well-being among high school Mathematics teachers was found to be **very high**, indicating their consistent positive experiences in the workplace.

2. The teachers demonstrated a **high level of cultural intelligence**, suggesting a deep understanding of the diverse cultural backgrounds of their learners.

3. The **teaching competence** of high school Mathematics teachers was rated as **outstanding**, reflecting their high proficiency across key performance indicators.

4. **Significant moderate correlations** were identified between work well-being and cultural intelligence, work well-being and teaching competence and cultural intelligence and teaching competence.

5. **Cultural intelligence** was found to **partially mediate** the relationship between work well-being and teaching competence, indicating that it plays a meaningful role in enhancing the effect of well-being on teaching effectiveness.

* 1. Recommendations

1. Since the level of work well-being of high school Mathematics teachers was very high, it is essential to maintain and enhance this positive work environment. School heads therefore are encouraged to build supportive and collaborative culture where teachers feel valued, respected, and motivated. Likewise, teachers may provide opportunities for professional growth, recognize their efforts, and prioritize their well-being.

2. Though teachers exhibited high level of cultural intelligence, school heads are encouraged to continue investing in cultural intelligence training and development as well as offer workshops, seminars, or professional development programs that focus on developing further the cultural intelligence of teachers. This will enable them to effectively engage with the culturally diverse student populations and promote inclusive teaching practices. Also, teachers may intensify their understanding on the impact of socio-cultural contexts in teaching and learning, and that they may exhausts all means to ensure personal growth and professional development focusing on improving one’s cultural intelligence.

3. With the outstanding level of competence among high school Mathematics teachers, they may continually engage in workshops, conferences, or collaborative learning experiences to enhance their pedagogical skills, content knowledge, and instructional strategies. Also, they are encouraged to stay updated with the latest research and best practices in mathematics education. Aside from that, they may also be motivated to promote a positive work environment that values diversity, fosters cultural awareness, and encourages intercultural communication.

4. The results showed that cultural intelligence exhibited significant mediation effect on the relationship between the levels of work well- being and teaching competence of high school Mathematics teachers. Hence, propagating better the cultural intelligence of teachers may be considered in crafting Learning and Development Plan as well as School Improvement Plan to maximize teachers’ work well-being and consequently improve their competence in teaching profession.

5. Further studies may be conducted by future student and professional researchers to explore further the interplay of cultural intelligence, work well-being and teaching competence of Mathematics teachers with a wider scope and increase number of respondents. They may utilize structural equation modelling to include other variables that may affect the competence of high school Mathematics teachers.

**CONSENT**

In accordance with university or international standards, the author(s) have gathered and kept the participants’ written consent.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

The author(s) of this manuscript hereby certify the use of generative AI technology and was only limited to improving the composition of sentences and paragraphs and checking for grammar.

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