



INCREASING TECHNOLOGY, INFORMATION AND COMMUNICATION (ICT) LITERACY THROUGH STRENGTHENING VISIONARY LEADERSHIP, WORK-LIFE BALANCE, TRAINING EFFECTIVENESS AND ACHIEVEMENT MOTIVATION

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Abstract

This research aims to determine the increase in technology, information and communication (ICT) literacy through strengthening visionary leadership, work-life balance, training effectiveness and achievement motivation. The research was carried out at a private vocational school in the city of South Jakarta. The research method used is a survey method with hypothesis testing using path analysis. The population in this study was 186 private vocational school mathematics teachers in the city of South Jakarta and the research sample was 127 people and the sample was taken using a proportional stratified random sampling technique. The research results show that: (1) there is a significant direct positive influence of visionary leadership on ICT literacy; (2) there is a significant direct positive influence of work-life balance on ICT literacy; (3) there is a significant direct positive effect of training effectiveness on ICT literacy; (4) there is a significant direct positive influence of achievement motivation on ICT literacy; (5) there is a direct influence of visionary leadership on achievement motivation, (6) there is a direct influence of work-life balance on achievement motivation, (7) there is a direct influence of training effectiveness on achievement motivation, (8) there is an insignificant positive indirect effect of visionary leadership on ICT literacy through achievement motivation; (9) there is an indirect and insignificant positive influence of work-life balance on ICT literacy through achievement motivation; and (10) there is a positive indirect influence that is not significant on the effectiveness of training on ICT literacy through achievement motivation.

Keywords: ICT Literacy, Visionary Leadership, Work Life Balance, Training Effectiveness, Achievement Motivation.

INTRODUCTION

ICT literacy is also a part that teachers must have. In Law no. 14 of 2005 concerning Teachers and Lecturers article 35 paragraph (1) explains that the teacher's workload includes the main activities, namely planning learning, implementing learning, assessing learning outcomes, guiding and training students, as well as carrying out additional tasks. In planning and implementing learning activities, teachers must be able to select and create appropriate learning media and apply them to the teaching and learning process. Marfiyanto and Rodiyah's opinion (in Purwanto, et al. 2020:78), is that teacher performance indicators are: using learning resource media, mastering the basics of education, managing teaching and learning interactions, assessing student achievement. So that the teacher's mastery of learning media plays a role in learning.

Technological developments will affect the continuity of learning in schools, both teachers and students in learning. According to Suhendi, et al. (2017:2) technological developments will influence the continuity of the learning process in schools. It seems that the use of technology is a primary need in the world of education, both students and teachers in general can use technology according to their developments. This shows that

technology is a supporting factor for the success of the learning process in schools. In line with Muhdi's opinion (in Insetyonoto and Sutiawan, 2020) that teachers are required to be able to utilize Information and Communication Technology (ICT). Teachers are expected to be familiar with various applications, coding, and technological literacy in reading data so that it can be applied in learning.

According to ETS (Gnambs, 2021:2), ICT literacy is typically defined from a functional perspective as the ability of individuals to use “digital technology, communication tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society. ICT literacy is an individual's ability to use digital technology, communication tools, and/or networks to access, manage, integrate, evaluate, and create new knowledge that is useful in society. According to this opinion, ICT literacy indicators consist of: (1) Knowledge or skills about digital technology, communication tools and the internet in understanding, accessing and managing, integrating and evaluating. (2) Attitudes towards digital technology, communication tools and the internet in creating and communicating new information, and being responsible for new information.

However, teachers' use and mastery of internet technology in learning has not increased much. Even in utilizing and using the internet, students are better than teachers. Yusuf, et al. (2021) that good ICT literacy among students and teachers is not utilized properly in mathematics learning. The problem of low ICT literacy is supported by the opinion of Sanusi (2018) who states:

ICT competency: The number of teachers who are familiar with technology is less than 50 percent of the total number of teachers. Then the results of the Ministry of Education and Culture's mapping of 28 thousand (teachers) turned out that only 46% of those who had mastered level 1 (knowledge or understanding of ICT) passed. The main obstacle is that mastery competency is still below 50%. Meanwhile for the second level (operating and applying ICT) only 14% passed.

Then it was reinforced by the results of a survey conducted by the Center for Information and Communication Technology, Education and Culture (Pustekkom) of the Ministry of Education and Culture (Kemendikbud) in 2018, which stated that out of 28 thousand (teachers) it turned out that only 46% had mastered level 1. The main obstacle is that mastery competency is still below 50%. Meanwhile, for the second level, only 14% were able to pass (Suhendri, et al. 2020:292). Level one is ICT literacy skills, level two is the ability to use and implement ICT, level three is the ability to create your own ICT-based content or products, and level four is the ability to become a trainer or communicate ICT to others.

Therefore, efforts need to be made to overcome the problem of low technological literacy of teachers, especially mathematics teachers. One of the efforts is to equip prospective teachers at LPTK with the ability to master computers and information technology. Nasution (2018:17), universities that prepare prospective mathematics teachers are expected to provide courses to develop the skills of prospective mathematics teacher students regarding how to design learning by utilizing technology, skills in mastering and using mathematics software in learning, mastery of ICT and skills in designing online learning. This is in line with the opinion List, et al. (2020:17), if pre-service teachers come to hold more sophisticated conceptions of digital literacy, they may implement more sophisticated digital literacy activities into their instruction and engage their students

in critical reasoning about technology to a greater extent. If prospective teachers who are undertaking internships or practical field experiences (PPL) are equipped with a good conception of digital literacy, they can better implement digital literacy activities into their teaching and engage students in critical reasoning about technology in their learning. The use of information technology in learning at school is influenced by the characteristics of teachers, schools and the education system. As stated by Taimalu & Luik (Ifinedo, dkk, 2019:4), research over decades has shown that technology integration in the classroom depends on several connected factors relating to teachers' characteristics, schools, and educational systems.

The role of the school principal is in supporting the increase in teacher ICT literacy through the leadership style applied, one of these leadership styles is visionary leadership. Visionary leadership is a style or type of leadership that plays a very important role in developing mathematics teachers' ICT literacy. Visionary leadership is a type of leadership that is able to formulate, communicate, transform and implement creative ideas for the future. This is according to opinion Uysal (Cinar and Kaban, 2012:198), the visionary leadership type, which aims to plan the future and to carry the organization to the best position, is a model, of which it is proposed to achieve the most productive result in order to overcome incurred and/or possible to incur conflicts with the most appropriate conflict management style. Visionary leadership is behavior that is able to plan the future of the organization and lead the organization in a positive direction in achieving the most productive results and is able to resolve conflicts that arise and/or may cause conflict with the organization. Then according to opinion Cinar and Kaban (2012:200), visionary leadership questionnaire is composed of four dimensions. The visionary leadership dimensions: (a) Visionary thinking, (b) Being action oriented, (c) Portrait of the future, (d) Being open to changes.

Another effort to increase ICT literacy is through computer training. ICT professional development activities might increase ICT activities related to constructivist learning implementation. With the growing attention paid to lifelong learning skills, teachers should be encouraged to participate in programs such as online learning communities (Alt, 2018:149). Developing professional computer and information technology capabilities will be able to increase information technology application activities applied in learning. Teachers must be encouraged to always develop their knowledge, especially in information technology, through participation in online learning communities, one of which is through training. Factors in training that support increasing ICT literacy are the impact or results of the training. With training, you will be able to increase or develop the competence or abilities of organizational members, so that it will have an impact on increasing organizational performance. According to the opinion of Kirkpatrick & Kirkpatrick (Ramlan, et.al., 2020:43) effective training is considered when the training is well received, successfully provide relevant knowledge and skills to the participants and confidence to apply it in the workplace. Training effectiveness is the reception of training well and successfully providing relevant knowledge or skills for participants as well as the confidence to apply it in the workplace. The next indicators of training effectiveness according to this opinion are: (a) providing relevant knowledge and skills for participants, and (b) participants applying knowledge and skills in the workplace with confidence.

Increasing ICT literacy is also supported by work-life balance, which is a condition of an individual being able to organize and manage tasks at work and at home. Worklife balance really supports a person's success in their career and household. Tomazevic, et al. (Tasnim, et.al., 2017:76) the meaning of work-life balance is to effectively combining professional life with personal obligations and creates a harmony between these two aspects. This opinion is supported by Bell, et.al. (Tasnim, et.al., 2017:76) it can be defined as the absence of conflict between professional and personal life. According to both opinions, work-life balance is a person's ability to effectively combine professional (work) life and personal obligations and is able to create harmony between these obligations so that conflict does not arise between professional (work) life and personal life. Indicators of work-life balance according to this opinion are: (a) balance in carrying out work and personal obligations in a harmonious and effective manner, and (b) creating conditions without conflict.

Achievement motivation is an important factor in achieving achievements or abilities including ICT literacy. Achievement motivation is a strong drive that originates both from within one's personal self and from outside one's personal self. Darmawan stated (2019:348) that achievement motivation is a person's encouragement or desire to work optimally to certain standards to achieve success and avoid failure. This opinion is supported by Atkinson and Feather (in Darmawan, 2019: 348) that achievement motivation is a combination of two personality variables, namely the tendency to approach success and the tendency to avoid failure. Helmreich and Spence (in Darmawan, 2019:348-349):

There are four indicators of achievement motivation, namely: (a) mastery of needs with sub-indicators: happy to get challenging work, activity-oriented thinking, acting as a leader in a group, able to complete tasks that have been started; (b) work orientation with sub-indicators: proactive attitude towards work, liking what one does so that one gets a sense of satisfaction from work, pursuing self-realization and growth; (3) competition with sub indicators: having the desire to win; and (4) individuals who do not care about sub-indicators: do not consider success from performance.

Based on the description above, researchers will examine increasing ICT literacy through strengthening visionary leadership, work-life balance, training effectiveness, and achievement motivation. This research will discuss the direct and indirect influence of visionary leadership, work-life balance, training effectiveness, and achievement motivation on the ICT literacy of private vocational school mathematics teachers in South Jakarta.

METHOD

The research method used in this research is a survey method with hypothesis testing using path analysis. According to Widi (2018:31), path analysis is an analysis that connects independent, intervening and dependent variables. The pattern of relationships between variables is shown by arrows from one variable to another. The research design is as shown in the following image.

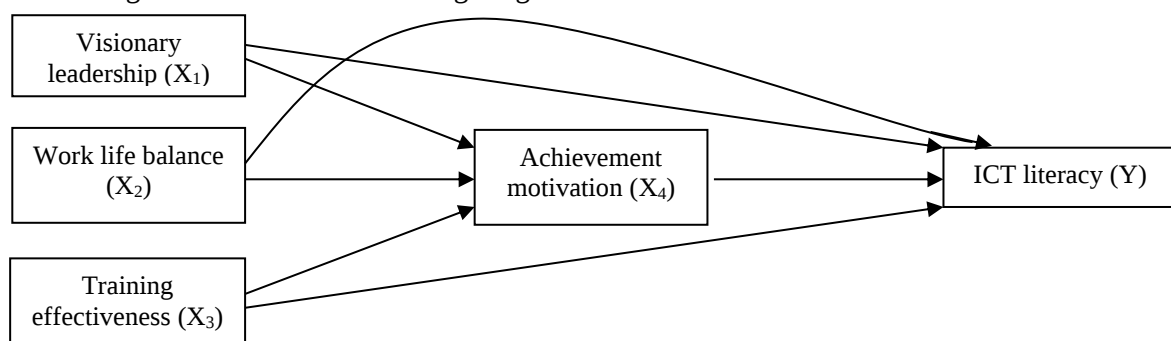


Figure 1. Research Design or Configuration

The research was carried out at a private vocational school in the city of South Jakarta. The research population was 186 private vocational school mathematics teachers in the city of South Jakarta. The research sample was taken from the population using a proportional stratified random sampling technique. Determining the number of research samples using the Slovin formula, namely: $n = \frac{N}{1 + Ne^2}$

n = number of samples N = population size e = error rate (5% = 0,05)

$$n = \frac{N}{1 + Ne^2} = \frac{186}{1 + 186(0,05)^2} = \frac{186}{1 + 0,465} = \frac{186}{1,465} = 126,96 \cong 127$$

The total research sample was 127 people.

Data collection techniques include administering questionnaires for the variables of visionary leadership, work-life balance, training effectiveness and achievement motivation. Meanwhile, for the ICT literacy variable, data collection is through giving written tests and questionnaires. The research instruments used have been validated and consist of: a 36-item visionary leadership questionnaire, a 36-item work-life balance questionnaire, a 36-item training effectiveness questionnaire, and a 36-item achievement motivation questionnaire. Meanwhile, for the ICT literacy variable, a 20-item questionnaire was used and a 20-item multiple choice written test. Before testing the hypothesis using path analysis, data analysis requirements are tested which consist of: normality test of estimated standard error, homogeneity test, and linearity test.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Analysis of descriptive statistical data descriptions as in the following table.

Table 1. Recapitulation of Descriptive Statistical Data Descriptions

Number	Statistics	X1	X2	X3	X4	Y
1	Mean	149,80	138,22	136,46	133,70	91
2	Std. Error of Mean	1,56	1,14	1,60	1,42	0,91
3	Median	152	138	136	132	91
4	Mode	158	133	135	135	89
5	Std. Error of Mean	17,63	12,88	18,00	16,00	10,31
6	Std. Error of Mean	310,82	165,82	323,19	255,58	106,29
7	Range	65	64	76	67	48
8	Minimum	115	110	100	106	71
9	Maximum	180	174	176	173	119
10	Sum	19024	17554	17330	16980	11557

Based on the table data above, the average variable: visionary leadership is 149.80 (range 115 to 180), work-life balance is 138.22 (range 110 to 174), training effectiveness is 136.46 (range 10 to 170), achievement motivation is 133.70 (range 106 to 173), and ICT literacy is 91 (range 71 to 119) .

Data Analysis Requirements Testing

Before testing the hypothesis, the data analysis requirements are first tested, namely: normality test of the estimated standard error, homogeneity test, and linearity test.

Table 2. Summary of Estimated Standard Error Normality Test

Number	Estimated Standard Error	Asymp. Sig.	α	Conclusion
1	Y atas X_1	0,200	0,05	0,200 > 0,05 maka normal
2	Y atas X_2	0,066	0,05	0,066 > 0,05 maka normal
3	Y atas X_3	0,200	0,05	0,200 > 0,05 maka normal
4	Y atas X_4	0,200	0,05	0,200 > 0,05 maka normal
5	X_4 atas X_1	0,200	0,05	0,200 > 0,05 maka normal
6	X_4 atas X_2	0,200	0,05	0,200 > 0,05 maka normal
7	X_4 atas X_3	0,200	0,05	0,200 > 0,05 maka normal

Based on the table above, the error estimates for the ICT literacy variables for visionary leadership, work-life balance, training effectiveness, and achievement motivation are normally distributed. Likewise, the error estimates for the achievement motivation variables for visionary leadership, work-life balance, and training effectiveness are normally distributed. So that it can be continued to the next testing stage.

Table 3. Summary of Homogeneity Test

Number	Variance	Sig test of Homogeneity varians	α	Conclusion
1	Y atas X_1	0,052	0,05	0,052 > 0,05 maka homogen
2	Y atas X_2	0,309	0,05	0,309 > 0,05 maka homogen
3	Y atas X_3	0,062	0,05	0,062 > 0,05 maka homogen
4	Y atas X_4	0,058	0,05	0,058 > 0,05 maka homogen
5	X_4 atas X_1	0,071	0,05	0,071 > 0,05 maka homogen
6	X_4 atas X_2	0,275	0,05	0,275 > 0,05 maka homogen
7	X_4 atas X_3	0,054	0,05	0,054 > 0,05 maka homogen

Based on the table above, the homogeneity of ICT literacy data group variants on visionary leadership, work-life balance, training effectiveness, and achievement motivation comes from a homogeneous data population. Likewise, the homogeneity of variance of the achievement motivation data group on visionary leadership, work-life balance, and training effectiveness comes from a homogeneous data population. So that the requirement for homogeneity of group variance is met.

Table 4. Summary of Linearity Tests for Regression Equations

Number	Regression	Deviation from Linearity	α	Conclusion
1	$\hat{Y}$ atas X_1	0,431	0,05	0,431 > 0,05 maka linear
2	$\hat{Y}$ atas X_2	0,127	0,05	0,127 > 0,05 maka linear
3	$\hat{Y}$ atas X_3	0,135	0,05	0,135 > 0,05 maka linear
4	$\hat{Y}$ atas X_4	0,062	0,05	0,062 > 0,05 maka linear
5	X_4 atas X_1	0,083	0,05	0,083 > 0,05 maka linear
6	X_4 atas X_2	0,549	0,05	0,549 > 0,05 maka linear
7	X_4 atas X_3	0,070	0,05	0,070 > 0,05 maka linear

Based on the table above, the regression equation model of ICT literacy on visionary leadership, work-life balance, training effectiveness, and achievement motivation has a linear pattern and the linearity requirements are met. Likewise, the regression equation model for achievement motivation on visionary leadership, work-life balance, and training effectiveness has a linear pattern.

a. Dependent Variable: Motivasi Berprestasi

Based on the Coefficients table, the path coefficient values are obtained as follows: $\beta_{41} = 0.162$ for X1 to X4, $\beta_{42} = 0.211$ for X2 to X4, and $\beta_{43} = 0.552$ for the respective significant values for X1 = 0.015, X2 = 0.003, and X3 = 0.000. The significance values of X1, X2, and X3 are all less than 0.05. These results imply the conclusion that in Regression Model II, namely X1, X2, and X3 all have a significant influence on X4.

Table 8. Summary of Empirical Model Results for Substructure-2

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.800 ^a	.640	.631	9.71088	.640	72.829	3	123	.000
a. Predictors: (Constant), Efektivitas Pelatihan, Kepemimpinan Visioner, Keseimbangan Kehidupan Kerja									

Based on the model summary table above, it shows the calculation of the coefficient of determination marked R Square = 0.640 or 64%. This indicates that the contribution of X1, X2, and X3. Meanwhile, the remaining influence is calculated using the formula $1 - 0.640 = 0.360$, then the value of e (error) can be calculated using the formula $\varepsilon_2 = \sqrt{1 - 0.640} = 0.60$.

In accordance with the calculations for substructure-1 and substructure-2, it shows that there are 7 (seven) coefficients studied that have path coefficients that are identified as significant at $\alpha = 0.05$. The empirical research path diagram can be seen in the following image.

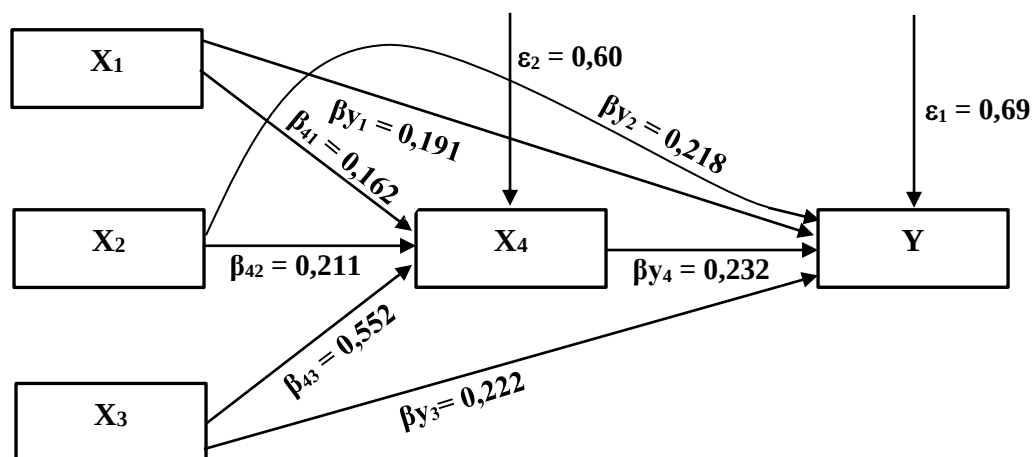


Figure 2. Coefficient of Visionary Leadership Path, Work Life Balance, Training Effectiveness, Achievement Motivation on ICT Literacy

Discussion

1. Direct Influence of Visionary Leadership on ICT Literacy

Based on the calculation results, the path coefficient value $\beta_{y1} = 0.191$ with a value of Sig. = 0.016 ($p < 0.05$) and the value of tcount = 2.447 and ttable at the real level $\alpha = 0.05$ of 1.645 (tcount > ttable) means that H0 is rejected and H1 is accepted. Thus, there is a direct influence of the visionary leadership variable (X1) on teacher ICT literacy (Y). This means that the stronger the visionary leadership

implemented by the school principal will increase the ICT literacy of private vocational school mathematics teachers in South Jakarta City.

The role of the principal as an organizational leader in the school has an important role in developing teacher competence, including ICT literacy. The role of the madrasa head as a leader is very important because it can determine the success of an institution. Effective leadership is leadership that is able to grow and develop collaborative efforts and maintain conducive conditions (Yusuf, et al., 2022:86). This is in accordance with one of the indicators of visionary leadership, namely the ability to motivate and guide.

This is reinforced by the opinion of Nika, et al. (2022:92) that there is a positive relationship between self-efficacy and digital literacy. The higher the level of visionary leadership of the school principal, the higher the teacher's digital literacy. This means that the visionary leadership implemented by the school principal supports the progress of teachers' digital literacy or ICT. The visionary leadership applied by school principals encourages innovation and development of ICT literacy, including investment in ICT training, development of new applications and technology, as well as implementation of ICT solutions that can increase teachers' overall ICT literacy.

The visionary leadership role implemented by the school principal will also ensure that sufficient resources are available to support ICT literacy, such as a budget for training, necessary technological infrastructure, and other supporting facilities. This is supported by the opinion of Ristianti, et al. (2021:165), the principal's strategy is to hold ICT training in the form of workshops and BIMTEK which discuss preparing learning tools, online learning and preparing assessment questions, implementing a peer tutoring system, namely learning through friends, implementing policies regarding the use of qualitative applications as a learning tool, and providing knowledge about ICT through learning technology links. This shows one indication of the visionary leadership implemented by the school principal, namely being able to bring the school organization towards progress and being able to implement positive changes in the school. Apart from that, the ability of school principals to be able to communicate ideas in developing ICT literacy to teachers must be optimal and constant.

Based on the description above, visionary leadership can have a significant influence on teacher Information and Communication Technology (ICT) literacy in a school organization. With visionary leadership that focuses on teachers' ICT literacy, it is hoped that their ability to use technology effectively will increase to support the learning process and improve the quality of education. Visionary leadership can be the key to increasing ICT literacy by creating an environment that supports learning and the effective use of technology in achieving school organizational goals. Sajiman dan Suhendri (2022:275), factors that influence ICT literacy consist of: visionary leadership, training effectiveness, work-life balance, achievement motivation.

2. Direct Effect of Work-Life Balance on ICT Literacy

Based on the calculation results, the path coefficient value $\beta_{y2} = 0.218$ with a value of Sig. = 0.010 ($p < 0.05$) and the value of $t_{count} = 2.604$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$)

means that H0 is rejected and H1 is accepted. Thus, there is a direct influence of the work-life balance variable (X2) on teacher ICT literacy (Y). This means that the better work-life balance implemented by teachers will increase the ICT literacy of private vocational school mathematics teachers in South Jakarta.

Teachers must be able to implement a balance of roles as educators in schools and individuals both in the family and society. A good work-life balance provides teachers with sufficient time and energy to engage in additional learning activities, including improving ICT literacy. Teachers who feel too tired or stressed may tend to be less motivated to learn new things. Individuals who have an ideal work-life balance will be able to carry out various roles in their lives well (Rohmawati and Izzati, 2021:4). Teachers who have a good work-life balance will try to manage their time in work and personal life, including time to improve ICT literacy. Still, according to Rohmawati and Izzati (2021:4), a positive work-life balance will have an impact on job growth and security, increase individual skills and knowledge, and have a positive influence on overall satisfaction with life.

Work-life balance can help grow teachers' interest and enthusiasm for ICT. Teachers who feel balanced may be more open to exploring and adopting technology in classroom learning activities. Work-life balance can also give teachers the opportunity to use technology in their personal lives, such as managing time, planning activities, or engaging in online communities. This experience can help them feel more comfortable and skilled in adopting ICT for learning purposes. Information technologies have increased the learning capacity of individuals and made the adaptation to social life easier. The ones who can make use of information technologies are one step ahead from the others in every part of life (Topaloglu and Tekkanat, 2015:575).

Teachers who can achieve a good work-life balance may be more likely to be creative and innovative in their use of technology in the classroom. They have time to search for new solutions, create ICT-based learning materials, and collaborate with their peers. Proper use of technology can improve teaching efficiency. Teachers trained in ICT literacy can better manage administrative tasks, use online evaluation tools, and provide feedback more quickly. This is in accordance with the opinion of Rahman, et al. (2021:314) that information and communication technology is a medium for information transfer and interaction in learning between teachers and students. Therefore, teachers and students must both be able to make good use of information and communication technology.

Based on the description above, work-life balance can have a direct influence on teacher Information and Communication Technology (ICT) literacy. Thus, work-life balance is not only important for teachers' personal well-being, but also contributes positively to the development of their ICT literacy, enabling them to become effective learning leaders in the digital era. Sajiman dan Suhendri (2022:275), factors that influence ICT literacy consist of: visionary leadership, training effectiveness, work-life balance, achievement motivation.

3. Direct Effect of Training Effectiveness on ICT Literacy

Based on the calculation results, the path coefficient value $\beta_{y3} = 0.222$ with a value of Sig. = 0.029 ($p < 0.05$) and the value of $t_{count} = 2.210$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$) means

that H0 is rejected and H1 is accepted. Thus, there is a direct influence of the training effectiveness variable (X3) on teacher ICT literacy (Y). This means that the stronger the effectiveness of the training that teachers have, the ICT literacy of private vocational school mathematics teachers in South Jakarta will increase.

The effectiveness of training on teachers' Information and Communication Technology (ICT) literacy can have a significant influence on teaching and learning abilities in the digital era. Effective training can increase teacher competence in using and integrating technology in the teaching process. Teachers who are more skilled in ICT literacy have the ability to utilize a variety of digital tools and resources to improve the quality of learning. Elfutriadi (2019:217) states that training or training is a planned learning activity to increase knowledge and skills so that individual and organizational performance increases. Rahmadin, et al. expressed the same thing. (2022:2829), the better a teacher's education, the greater the teacher's ability to use ICT which will influence the teacher's performance in teaching the subjects taught to his pupils or students.

Training in the field of ICT also supports teacher learning activities in the classroom, especially mathematics lessons. Teachers skilled in ICT literacy can more effectively utilize digital resources to support their teaching. This includes the use of online learning platforms, interactive learning resources, and access to up-to-date information that can enrich students' learning experiences. Basuki (2022:233) states that training and mentoring to apply ICT has been planned in the RPP in the KBM process. No matter how busy the school principal or leader is, he must program coaching for his subordinates, in this case the teachers for whom he is responsible, through continuous or ongoing training and mentoring.

Proper use of technology can also improve teaching efficiency. Teachers trained in ICT literacy can better manage administrative tasks, use online evaluation tools, and provide feedback more quickly. So it is necessary to increase competence in teacher ICT literacy. Rahmadin, et al. (2022:2824) efforts are needed that can increase teacher competence so that they are able to carry out their responsibilities as fully as possible with good quality and performance in accordance with the expected learning objectives in order to achieve previously determined educational goals.

Therefore, investment in effective ICT training can have a significant positive impact on teachers' ICT literacy and, in turn, improve the overall quality of education. Education and training are actions carried out with the aim of improving the quality of workers and developing attitudes and behavior, skills and knowledge. Teachers should be given opportunities for training on ICT use for building up their skill, motivation, knowledge and confidence (Paudel, 2020:20).

Based on the description above, the effectiveness of training can have a direct influence on teacher Information and Communication Technology (ICT) literacy. The more quality and effective the training activities are, the more teachers' ICT literacy will increase. Sajiman dan Suhendri (2022:275), factors that influence ICT literacy consist of: visionary leadership, training effectiveness, work-life balance, achievement motivation.

4. Direct Effect of Achievement Motivation on ICT Literacy

Based on the calculation results, the path coefficient value $\beta_{y4} = 0.232$ with a value of Sig. = 0.028 ($p < 0.05$) and the value of $t_{count} = 2.218$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$) means that H_0 is rejected and H_1 is accepted. Thus, there is a direct influence of the achievement motivation variable (X_4) on teacher ICT literacy (Y). This means that the stronger the teacher's motivation for achievement will increase the ICT literacy of private vocational school mathematics teachers in South Jakarta.

Achievement motivation can be a strong encouragement for teachers to continue learning and developing their ICT skills. This encouragement encourages participation in training, seminars, and online courses to increase their understanding of technological developments. Teachers who have achievement motivation tend to be better prepared to keep up with technological developments. They may be more willing to learn and adapt to changes, thereby remaining relevant in the use of ICT in education. Sajiman dan Suhendri (2022:275), factors that influence ICT literacy consist of: visionary leadership, training effectiveness, work-life balance, achievement motivation. The importance of education and training in the AIS context can also be seen as a long-term investment. Increased user understanding not only helps in daily tasks but also contributes positively to the evolution of their careers. When users can master AIS well, they become more competent and better prepared to face future technological changes (Sari dan Ratnawati, 2023:964).

Teachers who have achievement motivation will usually be active in developing their digital literacy. They can improve their understanding of digital security, online ethics, and other related technology skills. Achievement motivation can stimulate teacher creativity in developing learning materials that utilize technology. High motivation of teachers towards ICTs and their use in language teaching even though they do not have enough confidence, skills and knowledge in using different ICT tools and applications (Paudel, 2020:32). They may create digital resources that are interactive and engaging for students. Achievement motivation can encourage teachers to apply technology in the assessment process. They may be looking for ways to use digital tools for formative and summative assessments, leveraging the advantages of technology in providing feedback and evaluation.

Achievement motivation needs to be supported by organizational support, adequate ICT training, and a work environment that supports the use of technology. Apart from that, there needs to be efforts from schools or educational institutions to create a culture that encourages the development of teachers' ICT literacy. It is important to create an environment in schools that supports this achievement motivation by providing quality ICT training, adequate resources and support from school management. To use technology in the classroom, they should be competent on technology knowledge, pedagogic knowledge and content knowledge, which should intersect and interact with each other both theoretically as well as practically in their contexts (Paudel, 2020:32).

Based on the description above, achievement motivation can have a direct influence on teacher Information and Communication Technology (ICT) literacy. The higher the teacher's achievement motivation, the higher the teacher's ICT literacy will also be. If a teacher has high achievement motivation,

then the teacher will be able to optimize the potential or advantages he has to compete and excel and be able to anticipate obstacles that will occur in achieving success.

5. Direct Influence of Visionary Leadership on Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{41} = 0.162$ with a value of Sig. = 0.015 ($p < 0.05$) and the value of $t_{count} = 2.463$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$) means that H_0 is rejected and H_1 is accepted. Thus, there is a direct influence of the visionary leadership variable (X1) on achievement motivation (X4). This means that the stronger the visionary leadership implemented by the school principal will increase the achievement motivation of private vocational school mathematics teachers in South Jakarta City.

Visionary leadership can have a significant impact on achievement motivation in an organization. Achievement motivation refers to the drive and determination that individuals have to achieve challenging goals and excel in their endeavors. Visionary leadership in schools can have a positive influence, the positive impact of visionary leadership is encouraging innovation, creativity and adaptation which facilitates teacher work motivation (Masiaga, et al, 2017: 118). When visionary leadership is present, it can inspire and increase achievement motivation. This is in accordance with research by Ishak, et al. (2021:10) which states that there is a significant influence of the school principal's visionary leadership style on teacher achievement motivation. The higher the visionary leadership style, the higher the teacher's achievement motivation, while the lower the school principal's visionary leadership style, the lower the teacher's achievement motivation.

Visionary leaders articulate a compelling and clear vision for the future of the organization. This vision serves as a road map, giving employees purpose and direction. When individuals understand the direction of the organization's goals and how their efforts contribute to that vision, this can fuel their motivation to achieve it. School principals who will implement a visionary leadership style should always carry out regular evaluations to see to what extent they have realized the jointly agreed vision (Ishak, et al, 2021:12). This is reinforced by the opinion of Masiaga, et al. (2017:118) that there is a positive direct influence of visionary leadership on teacher work motivation. The higher the visionary leadership of the school principal, the higher the teacher's work motivation.

Visionary leaders empower their team members by giving them autonomy and decision-making authority. This sense of empowerment fosters a sense of ownership and responsibility, so that it can increase achievement motivation. Employees will be more motivated when they believe that their contributions have a meaningful impact. Teachers and other school stakeholders should participate in formulating and making the school vision a success, because one of the principles of visionary leadership is the involvement of all elements (Ishak, et al, 2021:12).

Based on the description above, visionary leadership can have a direct influence on achievement motivation. Visionary leadership has a major impact on achievement motivation by providing a clear vision, inspiring individuals, setting challenging goals, empowering and recognizing employees, and fostering a

culture of continuous learning and innovation. When employees are aligned with a compelling vision and feel empowered to contribute to its realization, they will be more motivated to reach their highest potential.

6. Direct Influence of Work Life Balance on Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{42} = 0.211$ with a value of Sig. = 0.003 ($p < 0.05$) and the value of $t_{count} = 3.029$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$) means that H_0 is rejected and H_1 is accepted. Thus, there is a direct influence of the training effectiveness variable (X2) on achievement motivation (X4). This means that the better work-life balance implemented by teachers will increase the achievement motivation of private vocational school mathematics teachers in South Jakarta City.

Work-life balance can have a direct influence on an individual's achievement motivation. Work-life balance allows individuals to have the time and space to explore interests and hobbies outside of their work. This can stimulate creativity and innovation, which in turn can increase motivation to achieve at work. According to Putriningsih (2020:58), the perception of responding to the work assigned calmly creates a positive perception of the work that will be carried out. Planning a work schedule based on superior priorities also reduces the possibility of errors in carrying out work and can increase employee work productivity. So that work can be done well and not become a burden on your mind when you have time for yourself and your family. This can certainly increase work morale and be more motivated in carrying out tasks. A good work-life balance that teachers have will increase achievement motivation so that teacher creativity and innovation in carrying out tasks which are part of the organization's goals will be achieved.

When a teacher has a good balance between work and personal life, they tend to be more productive at work. They can allocate time and energy more effectively, increase efficiency in completing their tasks, and ultimately achieve greater accomplishments. According to Nurjana, et al. (2022:102) that work-life balance has a positive and significant effect on work motivation. The higher the employee's work-life balance, the more motivated they are at work and vice versa, if the employee's work-life balance decreases, work motivation will decrease. Having enough time for family, hobbies, and other activities outside of work can increase your overall level of life satisfaction. Higher life satisfaction often correlates with higher motivation to achieve in various areas of life, including work. According to Hasmalawati and Restya (2017:65) the quality of employee life really needs to be paid attention to, because by paying attention to the quality of work life, it will motivate employees to develop their careers in an organization. The quality of work life also increases employees' desire to stay and survive in the organization.

Based on the description above, work-life balance can have a direct influence on achievement motivation. Work-life balance plays an important role in increasing individual achievement motivation by reducing stress, increasing life satisfaction, increasing productivity, stimulating creativity, and building strong relationships. Thus increasing teacher creativity, innovation and productivity in achieving success.

7. Direct Influence of Training Effectiveness on Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{43} = 0.552$ with a value of Sig. = 0.000 ($p < 0.05$) and the value of $t_{count} = 1.645$ and t_{table} at the real level $\alpha = 0.05$ of 1.645 ($t_{count} > t_{table}$)

means that H_0 is rejected and H_1 is accepted. Thus, there is a direct influence of the training effectiveness variable (X_2) on achievement motivation (X_4). This means that the stronger the effectiveness of the teacher's training, the higher the achievement motivation of private vocational school mathematics teachers in the city of South Jakarta.

The direct influence of training effectiveness on achievement motivation is an important focus in the context of human resource development and improving organizational performance. This statement indicates that there is a direct relationship or correlation between how effective the training given to individuals is and the individual's level of motivation to achieve achievement. This is reinforced by Givanni and Aribowo (2023:104) that training can have a significant influence on work motivation, through training it can improve employee skills and knowledge, good training provides opportunities for employees to increase their career opportunities.

In this context, training effectiveness may include aspects such as the relevance of training materials to job tasks, the quality of training delivery, the practical activities involved, and support and guidance after training. Meanwhile, achievement motivation refers to an individual's drive or desire to achieve high results, set ambitious targets, and strive consistently to achieve success. According to Darmawan, et al. (2017:1281) that there is a positive and significant influence between training variables on work motivation. provided by management is of direct benefit to employees so that it has a positive and significant impact on motivation. The better the training provided by management to employees, the higher the employee motivation will be.

Empirical research is often conducted to test hypotheses about the direct relationship between training effectiveness and achievement motivation. This research method may involve surveys, interviews, or direct observation, followed by statistical analysis to determine the extent to which these variables are related to each other. Research by Khoirurrahman, et al. (2022:262) states that training results influence motivation. These results indicate that the better the training, the better the motivation.

Training effectiveness has a significant direct influence on achievement motivation. This has important implications for organizations in designing and implementing high-quality training programs to motivate employees and improve their overall performance. According to Mangkunegara (in Givanni and Aribowo, 2023: 104) states five indicators to support training, namely training objectives, training materials, methods used in training, qualifications of training participants and qualifications of trainers in training.

Based on the description above, the effectiveness of training can have a direct influence on achievement motivation. Training plays an important role in teacher achievement motivation in increasing competence and knowledge so as to develop teacher quality. Then teachers are able to apply new knowledge in daily tasks with high self-confidence. Schools can design more effective training programs and motivate employees to reach their best potential in the workplace.

8. Indirect Influence of Visionary Leadership on Teacher ICT Literacy through Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{y41} = 0.038$ with $t_{count} = 0.633$ and t_{table} at the real level $\alpha = 0.05$ is 1.978 ($t_{count} < t_{table}$) meaning that H_0 is accepted and H_1 is rejected.

Thus, it can be concluded that there is an insignificant positive indirect effect of Visionary Leadership on teachers' ICT Literacy through Achievement Motivation. This means that the Achievement Motivation variable as an intervening variable in this research is not strong enough to support the influence of Visionary Leadership on teachers' ICT Literacy. Achievement Motivation does not play a major role as a mediator, where the direct influence is stronger than the indirect influence.

Apart from communication skills, the ability to motivate and guide which is a characteristic of visionary leadership has a big influence on teachers' ICT literacy without having to increase teachers' achievement motivation. Visionary leadership that is implemented well and effectively by the school principal directly becomes external motivation for teachers to increase ICT literacy. Teachers' ICT literacy is influenced by visionary leadership. A leader is required to have the ability to determine the future through vision. School principals can build their schools to be advanced and superior through the teachers they train so as to produce quality graduates. Purnaman, et al. (2022:632), leadership skills are very important in the workplace, where a leader must unite subordinates or employees from various divisions to function together and work together. For example, when a team, project, department, or company is having trouble sorting out solutions and deciding on a direction, a leader must be there to organize and make arrangements.

Nika, et al. (2022:91) in their research stated that the moderator variable for knowing ICT literacy is self-efficacy. Good teacher self-efficacy will encourage teachers to understand the importance of ICT literacy in their work at school, so it will encourage teachers to learn and use ICT literacy well. This means that the teacher will introspect himself regarding his abilities in ICT literacy, both the strengths and weaknesses of the teacher. So that teachers will improve ICT literacy which is low or poorly mastered and implement it in their duties as teachers so that learning objectives can be achieved well.

Meanwhile Firmansya, et al. (2022:496) in their research stated that the achievement motivation variable functions as an intervening variable in the influence of leadership on employee performance. One type or style of leadership is visionary leadership which has the characteristics of being an agent of change, communication skills, and the ability to motivate and guide. If the visionary leadership implemented by the school principal is particularly good at motivating and guiding teachers in increasing ICT literacy, then the teacher's inner motivation will grow to learn ICT and apply it in their work. The school principal applies visionary leadership as external motivation and achievement motivation as internal motivation, so that teachers will make maximum efforts to increase ICT literacy for the sake of school progress and achieving learning goals.

All indicators in the visionary leadership variable have high scores so that South Jakarta Private Vocational School Mathematics Teachers really believe in the figure of a leader who can look and think ahead sharply in accordance with his vision. Meanwhile, all indicators of achievement motivation have low values, including encouragement of achievement and reducing obstacles, liking challenges in achieving success, responsibility for the tasks carried out, and appreciation for the tasks carried out.

South Jakarta Private Vocational School mathematics teachers prioritize the role of a school principal who has a visionary leadership style rather than achievement motivation. A school principal who has a visionary spirit can provide creative ideas, establish communication and inspire so that his subordinates like him. This makes teachers work and carry out their duties seriously without being given achievement motivation which ultimately requires appreciation for the work they have done. Thus, the achievement motivation variable is directly placed as an input or independent variable, not an intervening variable because it is not strong enough to support the influence of visionary leadership on teacher ICT literacy.

9. Indirect Influence Direct Influence of Work Life Balance on ICT Literacy through Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{y42} = 0.049$ with $t_{count} = 0.628$ and t_{table} at the real level $\alpha = 0.05$ is 1.978 ($t_{count} < t_{table}$) meaning that H_0 is accepted and H_1 is rejected. Thus, it can be concluded that there is an insignificant positive indirect effect of Work Life Balance on teachers' ICT Literacy through Achievement Motivation. This means that the Achievement Motivation variable as an intervening variable in this research is not strong enough to support the influence of Work Life Balance on teachers' ICT Literacy. Achievement Motivation does not play a major role as a mediator, where the direct influence is stronger than the indirect influence.

The work-life balance variable has the characteristic of being able to manage time and carry out activities both work and personal life well and proportionally and feeling satisfied afterwards. Work-life balance has a major influence on teachers' ICT literacy without necessarily increasing achievement motivation. A teacher who has good work-life balance is able to complete work tasks well, including having a good personal and family life. Apart from that, being able to place or scale priorities in increasing ICT literacy so that it supports work and personal life.

Yahya and Laura (2021:33-34) in their research found that social motivation variables act as intervening variables in influencing work-life balance on work productivity positively but not significantly. However, his research stated that the moderating influence of social motivation on work-life balance on work productivity was positive and not significant. Teachers who are able to manage their time between assignments at school and at home and are able to carry out teaching assignments and personal activities proportionally will increase their motivation to work well both at school and at home. So it will improve a good working atmosphere and increase teacher work productivity.

Meanwhile, research conducted by Nurjana, et al. (2022:102) found that work motivation functions as an intervening variable in the influence of work-life balance on job satisfaction. The research results show that there is a significant positive influence of work-life balance on job satisfaction through work motivation. Teachers who are able to divide their time between teaching and other activities outside of school and carry out their teaching duties and personal activities proportionally well will give the teacher job satisfaction. This will increase the teacher's encouragement and desire to carry out their tasks optimally. Ultimately it will improve teacher performance and job satisfaction.

The school gives teachers the freedom to make the best use of their time to balance their work life. Apart from working at school, teachers can spend time with family, pursue their hobbies or want to improve their spirituality. So in living life, a teacher can balance his work life. So that teachers have a good quality of life, especially controlled anxiety and work stress levels which will have an impact on a strong desire to excel and increase ICT literacy which is very important in tasks in the world of education at school.

From the analysis that has been carried out, South Jakarta Private Vocational School Mathematics Teachers in carrying out their obligations are able to balance life and work. Teachers can be responsible for working at school, responsible for family matters, and can channel their hobbies. Thus, South Jakarta Private Vocational School Mathematics Teachers have full responsibility in carrying out their duties without being given achievement motivation first. Furthermore, achievement motivation has several weak indicators, namely encouragement of achievement and reducing obstacles, liking challenges in achieving success, responsibility for the tasks carried out, and appreciation for the tasks carried out. Based on the explanations that have been put forward, it can be concluded that to increase teacher ICT literacy, the achievement motivation variable is placed directly in the input variable, not the intervening variable because it does not support the indirect influence of the work-life balance variable on increasing teacher ICT literacy.

10. Indirect Influence Direct Influence of Training Effectiveness on ICT Literacy through Achievement Motivation

Based on the calculation results, the path coefficient value $\beta_{y43} = 0.128$ with $t_{count} = 1.969$ and t_{table} at the real level $\alpha = 0.05$ is 1.978 ($t_{count} < t_{table}$) meaning that H_0 is accepted and H_1 is rejected. Thus, it can be concluded that there is a positive indirect effect that is not significant. Training effectiveness on teachers' ICT literacy through achievement motivation. This means that the Achievement Motivation variable as an intervening variable in this research is not strong enough to support the influence of Training Effectiveness on teacher ICT Literacy. Achievement Motivation does not play a major role as a mediator, where the direct influence is stronger than the indirect influence.

Darmawan, et al. (2017:1284-1285) in their research found the intervening variable work motivation in determining the effect of training effectiveness on employee performance. The role of work motivation as a mediator in training on employee performance has a positive and significant effect. Training activities that have been implemented well and effectively will have an impact on increasing the knowledge and self-confidence of employees or teachers. So that employees or teachers have strong motivation to excel in their work. This will have an impact on the performance of employees or teachers will improve well.

Research conducted by Sulistyowati and Agustina (2021:101) states that work motivation can be used as an intervening variable in the influence of training on performance, although the effect is only 0.333. The training that has been attended will increase knowledge, skills and self-confidence as well as apply the results of the training in their duties, including for teachers when teaching at school. This will encourage or motivate you to continue to improve your achievements and overcome all obstacles in order to achieve success. So it will improve the performance of every member of the organization, including teachers in schools.

Teachers' ICT literacy is influenced by good training activities or good training effectiveness. So it is very important for a school institution to program training for teachers aimed at developing their skills. By participating in training activities, a teacher can provide information and can teach it back to colleagues so that fellow teachers have the same abilities. So that teachers can teach their students well because they have obtained previous knowledge. Furthermore, the achievement motivation provided by teachers aims to encourage teachers to improve their performance. For a teacher who has carried out creativity and innovation in interesting learning activities for his students, he will definitely be given appreciation in the form of a reward.

However, in this study the training effectiveness variable did not have a significant effect on teachers' ICT literacy when linked to achievement motivation. This is in line with the research results of Tsani & Prasetyo (2020) which states that the training variable on organizational commitment through achievement motivation as an intervening variable has no influence because the direct influence of the training variable on organizational commitment is greater than the indirect influence.

This condition occurs when South Jakarta Vocational School Mathematics Teachers have their own awareness to take part in training activities without being accompanied by one of the indicators of appreciation for the achievement motivation variable. Teachers already know and feel the benefits of participating in training activities, including: increasing knowledge and insight and having new colleagues. Another benefit is that teachers have many portfolios that can be used as requirements for advancing their career path at school. Based on the previous explanations, it can be concluded that achievement motivation cannot be used as an intervening variable because it cannot mediate between training effectiveness and ICT literacy. The achievement motivation variable is placed directly in the input variable, not the intervening variable.

CONCLUSION

Based on the results of research and discussion, So the conclusions from this research are: (1) there is a direct influence of visionary leadership on ICT literacy, (2) there is a direct influence of work-life balance on ICT literacy, (3) there is a direct influence on the effectiveness of training on ICT literacy, (4) there is a direct influence of achievement motivation on ICT literacy, (5) there is a direct influence of visionary leadership on achievement motivation, (6) there is a direct influence of work-life balance on achievement motivation, (7) there is a direct influence of training effectiveness on achievement motivation, (8) there is an insignificant positive indirect effect of visionary leadership on ICT literacy through achievement motivation., (9) there is an indirect positive influence that is not significant work-life balance on ICT literacy through achievement motivation, and (1) there is an indirect positive influence that is not significant on the effectiveness of training on ICT literacy through achievement motivation.

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