The Effectiveness of Implementing Webinar Tutorials for Primary School Mathematics Learning Subjects

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A B S T R A K

Perkuliahan di masa pandemi COVID-19 terpaksa harus dilaksanakan secara daring. Sementara tidak semua mahasiswa siap mengikuti pembelajaran daring. Tutorial Webinar (Tuweb) dirancang untuk memudahkan pelaksanaan perkuliahan secara daring. Penelitian ini bertujuan untuk menganalisis pengaruh pelaksanaan Tuweb terhadap hasil belajar mahasiswa. Jenis penelitian ini adalah ex post facto dengan metode campuran (kuantitatif dan kualitatif) dan pendekatan deskriptif. Sampel penelitian ini diambil dari seluruh populasi yang berjumlah 70 mahasiswa. Subjek penelitian terdiri atas 4 tutor. Teknik pengumpulan data menggunakan observasi, kuesioner, dan dokumentasi. Data yang terkumpul dianalisis menggunakan teknik deskriptif-kualitatif dan statistik-deskriptif. Hasil penelitian menunjukkan bahwa pelaksanaan Tuweb termasuk kategori sangat baik. Meskipun dokumen perangkat perkuliahan tutor belum lengkap tetapi pelaksanaan Tuweb menunjukkan kinerja tutor sangat baik. Sementara itu, pelaksanaan Tuweb termasuk kategori sangat baik dan mempunyai korelasi sempurna (sangat erat) dengan hasil belajar mahasiswa. Penelitian ini berimplikasi pada pentingnya pengembangan media pembelajaran berbasis tutorial sehingga memungkinkan materi perkuliahan dapat diakses dan dipelajari mahasiswa kapan pun dan di mana pun.

A B S T R A C T

Courses during the COVID-19 pandemic had to be carried out online. Meanwhile, not all students are ready to take part in online learning. The Webinar Tutorial (Tuweb) is designed to facilitate the implementation of online courses. This research aims to analyze the influence of implementing Tuweb on student learning outcomes. This type of research is ex post facto, with a mixed method (quantitative and qualitative) and a descriptive approach. This research sample was taken from the entire population of 70 students. The research subjects consisted of four tutors. Data collection techniques use observation, questionnaires, and documentation. The collected data was analyzed using descriptive-qualitative and descriptive-statistical techniques. The research results show that the implementation of Tuweb is in the very good category. Even though the tutor's course tool documents are not yet complete, the implementation of Tuweb shows that the tutor's performance is very good. Meanwhile, the implementation of Tuweb is in the very good category and has a perfect (very close) correlation with student learning outcomes. This research has implications for the importance of developing tutorial-based learning media so that course material can be accessed and studied by students anytime and anywhere.

1. INTRODUCTION

The COVID-19 pandemic has forced the transformation of the learning process in Indonesia from offline to online. This rapid, unplanned transformation makes educators (tutors) and students technically unprepared. Tutors do not yet have the preparation to transfer lecture material synchronously and asynchronously. Likewise, students are not yet familiar with the media, tools, and applications that support online learning, both synchronously and asynchronously (Dewi & Hasmirati, 2022; Husnaeni & Burga, 2024). Therefore, learning tutorials are needed, especially for students, so they can carry out learning independently and become more familiar with online learning support applications (Burga & Damopolii,

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2021; Maziriri et al., 2020). The importance of tutorial-based learning has only been realized and felt in the era of the COVID-19 pandemic. However, research on tutorial-based online (distance) learning has started since entering the era of digitalization of the education system (early 21st century), which has implications for the development of learning systems. Several researchers have focused their research on tutorials in distance learning, including: studies on online tutorial support in open and distance learning (Zhang et al., 2005); the quality of regional tutors in implementing face-to-face lecture tutorials; factors that influence the quality of lecture tutorials (Prayekti & Nurdin, 2011); tutorial session experience as a learning support for distance education students (Ogina & Mampane, 2013); tutorials as a support for successful learning (Maziriri et al., 2020; Tekane et al., 2020); a comparative study of mathematics learning outcomes using the WhatsApp platform and Zoom webinars in distance learning during the COVID-19 pandemic (Kusuma & Hamidah, 2020); the importance of using e-learning during and after the COVID-19 pandemic (Suprayitno & Budiman, 2021); tutor readiness in implementing face-to-face tutorials that focus on preparing Tutorial Activity Plans (RAT) and Tutorial Units (SAT); and evaluation of tutors in implementing lecture tutorials (Umasugi, 2023).

Paying attention to the focus of various previous studies, no one has specifically studied the implementation of Webinar Tutorials (Tuweb) in making learning that requires practice a success, such as elementary school mathematics learning. Therefore, the problem of the process of transferring applied science material through distance learning, which requires practice, has not been studied as comprehensively as the aim of this research. Apart from that, this research is also a response to the Universitas Terbuka (UT) policy in dealing with emergency learning during the COVID-19 pandemic (Mahrunnisya, 2022; Muflikah et al., 2022). UT designed study assistance services to maximize the student learning process in the form of tutorials. In tutorial model learning, learning activities are carried out under the guidance of a tutor as a facilitator who discusses things that are considered difficult and very important for students to master. In fact, as a university implementing distance education, UT has provided learning tutorials in various forms, including face-to-face tutorials (TTM); written tutorials; tutorials via the internet (Tuton); radio tutorials; TV tutorials; and most recently, tutorials via web or Webinar Tutorial (Tuweb) (Effendi et al., 2022; Zakirman & Rahayu, 2022).

Tuweb is a learning assistance service designed and provided by UT to optimize the learning process synchronously via the Internet network. Tuweb uses the Microsoft Teams application as a social application that connects students with tutors online, making it easier to interact in audiovisual communication (Effendi et al., 2022; Zakirman & Rahayu, 2022). The implementation of Tuweb is a solution provided by UT to optimize the face-to-face learning process with a distance learning process that is more communicative and interactive while being easily accessible anywhere and at any time (Khasanah et al., 2020; Muflikah et al., 2022). The Tuweb program is intended for students who have registered as TTM participants, with the following conditions: (1) the domicile of some or all of the TTM participating students is in the COVID-19 Red Zone; (2) the TTM location is in the COVID-19 Red Zone; (3) the domicile of students in one tutorial class comes from distant locations within one Distance Learning Program Unit (UPBJJ); and (4) the number of students per course class per UPBJJ is not sufficient to meet the minimum number required so that Tuweb can be implemented across UPBJJ.

Unfortunately, based on the results of monitoring and evaluation of Tuweb implementation, there are still tutors who have not uploaded the Kit-Tutorial on the https://lms.ut.ac.id page. Even the tutorial administration submission is not yet complete for the Learning Assistance and Teaching Material Services (BBLBA) section (Junaid & Baharuddin, 2020; Zakirman & Rahayu, 2022). Apart from that, it was found that tutors and students were not disciplined in implementing Tuweb, such as by joining late and quickly ending or leaving the Tuweb forum (Husnaeni et al., 2022; Umasugi, 2023).

Based on these problems, it is important to conduct research that examines the effectiveness of implementing Webinar Tutorials (Tuweb) in elementary school mathematics learning courses. There are three objectives of this research based on the focused subproblems, namely: (1) describing the readiness of tutors to implement Tuweb; (2) describing student satisfaction regarding the implementation of Tuweb; and (3) analyzing the effect of implementing Tuweb on student learning outcomes. The novelty of this study provides a new contribution to mathematics learning in elementary schools by exploring the use of webinars as a learning medium. Amidst advances in educational technology, webinars as a distance learning platform are still minimally explored in the context of mathematics learning for early childhood. This study explores whether this method can improve the understanding of mathematical concepts effectively compared to conventional learning methods.

2. METHOD

This type of research is ex post facto because it only reveals existing data without treating the research subjects (Sugiyono, 2015). Thus, variables cannot be controlled or manipulated by researchers because the events being studied have passed (Bungin, 2014). There are three variables in this research, namely: (1) Tutor readiness in implementing Tuweb, (2) student satisfaction regarding Tuweb implementation, and (3) student learning outcomes. Variable indicators can be seen in Table 1.

Table 1. Variable Indicators

No	Variable	Indicators
1	Tutor readiness in implementing Tuweb	The complete Tuweb learning device files required by UT are: 1. Tutorial Activity Design (RAT), 2. Tutorial Unit (SAT), 3. Presentation materials or PowerPoint (PPt), 4. Assignment design, and 5. Scoring guidelines
2	Student satisfaction regarding Tuweb implementation	1. Tutor performance, 2. The tutor's mastery of the material, 3. Applications used on Tuweb, 4. Tutor interaction with students, 5. Interaction between students, and 6. The tutor's accuracy regarding Tuweb implementation time
3	Student learning outcomes	1. Completion of assignments, 2. Participation in lectures, 3. Practice or practicum, 4. Final semester exam, 5. Final program assignment, and 6. Papers and other scientific works.

This research uses mixed methods (qualitative and quantitative) with a descriptive approach. Qualitative methods with a descriptive approach are used to describe natural phenomena or field facts related to tutor readiness and the implementation of Tuweb. Meanwhile, quantitative methods are used to describe statistical data on the influence of Tuweb implementation on student learning outcomes (Sugiyono, 2015). The population of this study were all tutors and students of the S1-PGSD Study Program at UPBJJ-UT of Makassar for the 2022.1 registration period who implemented the Tuweb Elementary Mathematics Learning course. There are 4 tutors and 70 students. Because the population was less than 100, a total sampling technique was used, namely taking the entire sample. Thus, the sample number is 4 tutors and 70 students (Sugiyono, 2015). Sample tutor to obtain data on tutor readiness in implementing Tuweb. Student samples to obtain data on student satisfaction regarding the implementation of Tuweb and student learning outcomes.

Data collection techniques in this research used observation, documentation, and questionnaires. Observations were carried out to collect data on the completeness of tutors' learning administration as a readiness to implement Tuweb, which was uploaded on the lms@ut.ac.id page. Documentation is used to collect data on student learning outcomes through the srs5g.ut.ac.id application. Meanwhile, a questionnaire was used to collect data on student satisfaction with the implementation of Tuweb. The questionnaire uses a Likert scale format equipped with four answer choices with a weight of 1–4. This is done to avoid the tendency to choose neutral scores (Mulyatiningsih, 2011). The scoring scale weighting used in this research is: Very Good (SB) = 4; Good (B) = 3; Low (R) = 2; and Very Low (SR) = 1. Tuweb readiness data from tutor respondents was processed manually by calculating the average using the formula: (number of tutor preparation components: maximum components) x 100%. Data processing regarding interactions carried out by tutors during the implementation of Tuweb uses an observation format carried out during 8 meetings with the formula: (Number of samples) x (Number of observations) x (Quality) (Sugiyono, 2015).

Data from 70 student respondents was processed using the SPSS V.26 application and then analyzed using descriptive and inferential statistical techniques in stages: (1) Test the validity of the data using bivariate Pearson correlation (Pearson's product-moment). If r count ≥ r table (two-tail test with sig. 0.05), then the instrument or question/statement items are declared valid (Jaya, 2020). (2) Test the

reliability of the data using Cronbach's alpha formula with the condition that if the alpha score is > 0.7, it means sufficient reliability (Jaya, 2020). (3) Data display in the form of tables and sentence descriptions that readers can understand. (4) The effect of implementing Tuweb on student learning outcomes using multiple correlaion analysis (Sugiyono, 2015). Analysis of the level of tutor readiness and student satisfaction is determined based on the percentage value of the questionnaire score after categorization using the percentage value formula: Index (%) = (Questionnaire Score : Highest Score) x 100%. Categorization based on the percentage score level is determined as follows in Table 2.

Table 2. Score Percentage Category Interval

Index (%)	Category
75.1 – 100	Very good
50.1 – 75.0	Good
25.1 – 50.0	Low
0.00 – 25.0	Very Low

3. RESULT AND DISCUSSION

Result

Data on tutor readiness in implementing the Tuweb for Primary School Mathematics Learning course was obtained from four tutors on duty during the 2022.1 registration period at UPBJJ-UT of Makassar. This data is based on the condition of the tutor's learning devices, as described in Table 3.

Tabel 3. Completeness of Tuweb Tutor's Learning Devices

No.	Completeness	Tutor			
		1	2	3	4
1	Tutorial Activity Design (RAT)	√	√	√	√
2	Tutorial Unit (SAT)	√	√	√	√
3	Presentation materials or Ppt	√	√	√	√
4	Assignment Design	x	√	√	x
5	Scoring guidelines	x	x	x	x

Note: √ = exists; x = none

The results of observations of the tutor's learning device files show that before implementing Tuweb, the tutor had prepared a Kit-Tutorial, although it was not complete. This is in accordance with Table 3, in fact, not one tutor (0%) prepared scoring guidelines. Only 2 tutors (50%) prepared assignment design files. Fortunately, all tutors (100%) prepare PPt, RAT, and SAT before implementing Tuweb. This is in accordance with the 2015 TTM tutor work instructions, which state that tutor preparation includes RAT, SAT, and PPt, which have been uploaded on the lms@ut.ac.id page by all tutors before Tuweb. However, to anticipate complaints from students who do not pass, tutors can show assignment designs and scoring guidelines by matching student assignment results. Therefore, every tutor needs to prepare a Kit-Tutorial in the form of RAT, SAT, PPt, Assignment Design, and Scoring Guidelines.

Tutor performance data in implementing Tuweb uses an observation sheet consisting of three main activities, namely: opening activities, core activities, and closing activities. The observation sheet for the opening activity consists of six indicators, namely: (a) opening Tuweb; (b) attending to students; (c) explaining the Tuweb implementation plan; (d) explaining the types of activities that students will carry out in Tuweb; (e) motivating students; and (f) explaining the assessment system. The core activities consist of seven indicators, namely: (a) explaining the competencies that students will achieve; (b) clarifying the material that will be discussed; (c) explaining the importance of the material that will be discussed; (d) discussing Tuweb concept material; (e) the tutor masters Tuweb material; (f) giving assignments 1, 2, and/or 3; and (g) showing attention to groups other than the presentation group. Meanwhile, closing activities consist of three indicators, namely: (a) concluding Tuweb material; (b) conveying Tuweb's next plans; and (c) closing Tuweb on time. The implementation of these indicators is measured using the Guttman "yes-no" or "yes-no" scale to get clear (firm) and consistent answers. Indicators with the condition "existing" get a score of 2, while those with the condition "none" get a score of 1.

Based on the provisions that have been determined, the sample number for each tutor is 1 class, the number of observations is 8, and the quality is 1–2. The results of tutor performance calculations based on the average quality of each Tuweb stage can be seen in Table 4.

Table 4. Tuweb Tutor Observation Results

Tuweb Stages Indicator	Standard			
	1	**2**	**3**	**4**
Opening Activities	96	80	80	88
Core Activities	104	104	96	104
Closing Activities	40	96	48	48
Total Number	**240**	**280**	**224**	**240**

Note: 1, 2, 3, and 4 are the naming numbers for the four tutors

Tutor performance percentage data was obtained through observation of the implementation of Tuweb. Observations are based on indicators of opening activities, core activities, and closing activities. The calculation of the percentage of tutor performance uses the formula: [(total number of quality observations) / (highest quality standard)] x 100%. The results of calculating the percentage of tutor performance observation data during Tuweb implementation, with the highest score being 280 (100%) and the lowest score being 224 (80%), result in 80%–100%. Based on Table 2 regarding score percentage category intervals, the results of observations of Tuweb implementation are classified as very good.

The data summary on the level of effectiveness of Tuweb implementation is based on student respondents' satisfaction assessments. Data was collected using a questionnaire with 21 statement items. Statistical data from respondents' answers was then processed using the SPSS V.23 program, the results of which are presented in Table 5.

Table 5. Student Assessment of the Effectiveness of Tuweb Implementation

No	Instrument Statement	N		Average	Std. Deviation	Total Score for Each Item	Student Assessment
		Valid	**Missing**				
1	I am ready to follow Tuweb properly, which is supported by the internet network	70	0	3.5857	0.55149	251	Very good
2	I can operate the Microsoft Teams application	70	0	3.6571	0.47809	256	Very good
3	I can access the https://lms.ut.ac.id application	70	0	3.7000	0.46157	259	Very good
4	I joined the Tuweb forum before the tutorial started	70	0	3.5286	0.53083	247	Very good
5	At the first meeting, the tutor clearly explains the rules for implementing Tuweb	70	0	3.6286	0.48668	254	Very good
6	At each Tuweb meeting, the tutor explains the objectives of the course material clearly	70	0	3.5286	0.50279	247	Very good
7	The tutor masters the course material being tutored (taught)	70	0	3.6857	0.49761	258	Very good
8	The tutor explains the course material systematically and interestingly	70	0	3.4286	0.49844	240	Good
9	The tutor provides enrichment material and examples that are easy to understand	70	0	3.5000	0.50361	245	Good
10	The tutor uses language that is easy to understand	70	0	3.7000	0.46157	259	Very good

No	Instrument Statement	N Valid	N Missing	Average	Std. Deviation	Total Score for Each Item	Student Assessment
11	Tutors behave politely during Tuweb implementation	70	0	3.6714	0.47309	257	Very good
12	Tutors motivate students to participate actively during TuWeb	70	0	3.7000	0.46157	259	Very good
13	The tutor manages the discussion well so that students participate actively	70	0	3.5857	0.52455	251	Very good
14	Tutors give all students the opportunity to answer questions evenly on Tuweb	70	0	3.4714	0.60724	243	Good
15	Students can communicate well and fluently with tutors and other students	70	0	3.5000	0.53161	245	Good
16	The tutor assigns 3 Tuweb assignments	70	0	3.7286	0.44791	261	Very good
17	The tutor gives assignment 1 on Tuweb 3, assignment 2 on Tuweb 5, and assign-ment 3 on Tuweb 7	69	1	3.8116	0.39390	263	Very good
18	Students can easily download questions and upload answers on the https://lms.ut.ac.id page	70	0	3.6571	0.53530	256	Very good
19	Tutors provide feedback on student assignment results via https://lms.ut.ac.id	70	0	3.4143	0.60176	239	Good
20	The tutor invites students to conclude the material that has been discussed	70	0	3.4143	0.60176	239	Good
21	Tutors start and end Tuweb meetings on time	70	0	3.5714	0.60365	250	Very good
	Number					5279	**Very good**
	Average					251	**Very good**

Table 5 shows that the level of effectiveness in implementing the Tuweb Elementary School Mathematics Learning Course ranges on average between 3.4143 and 3.8116, or an average score of 239–263, and the lowest average score ranges from 239–245. Based on the Tuweb implementation criteria for each item, the highest score on the instrument item is classified as very good, and the lowest score is classified as good. This is in accordance with the range of criteria in Table 6.

Table 6. Tuweb Implementation Criteria for Each Instrument Item

Criteria	Score	Range
Very Good	280	246 - 280
Good	210	176 - 245
Low	140	106 - 175
Very Low	70	70 - 105

Meanwhile, the overall implementation criteria for Tuweb obtained an average score of 251. Based on Table 6, the overall implementation of Tuweb is classified in very good criteria, with a total score of 5279, which is also classified as very good, as is the range of criteria in Table 7.

Table 7. Overall Tuweb Implementation Criteria

Criteria	Score	Range
Very Good	5880	5146 - 5880
Good	4410	3676 - 5145
Low	2940	2206 - 3675
Very Low	1470	1470 - 105

The relationship between the implementation of Tuweb and the students' final scores was determined through multiple correlation analyses. The results of data processing using SPSS V.26 can be seen in Table 8.

Tabel 8. 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	1.000	1.000	1.000	0.00000	1.000	105967050055776.000	17	2	0.000

Data in Table 8 shows a correlation score (Sig. F Change) of 0.000 or < 0.05, which means that the tutor readiness and student satisfaction variables have a correlation with the student's final grade. The level of closeness of the relationship (R score) is 1.000, which means that the correlation between Tuweb implementation and students' final scores is very close (perfect). The interpretation of the correlation coefficient can be determined based on Table 9.

Table 9. Interpretation of Correlation Coefficients

Correlation (Positive or Negative)	Interpretation of Correlation Coefficient
0.00	No Correlation
0.01 – 0.20	Very Weak Correlation
0.21 – 0.40	Weak Correlation
0.41 – 0.70	Medium Correlation
0.71 – 0.99	High Correlation
1.00	Perfect Correlation

The learning outcomes of students who took the Tuweb Elementary Mathematics Learning Course showed a very close or perfect correlation even though the exam was carried out via Take Home Exam (THE) because it was still in the COVID-19 pandemic situation. In the UT regulations stated in the 2019/2020 Catalog (Administration System), there are three tutorial assignments that students must complete, namely at the third, fifth, and seventh meetings.

Furthermore, in the TTM Tutor Work Instructions, it is stated that at the third, fifth, and seventh meetings, they will give tutorial assignments 1, 2, and 3 with the following provisions: (a) assignments requiring mastery of concepts must be done in class during the tutorial; (b) practical assignments can be done outside of tutorial time. Referring to the Circular Letter of Vice Rector 1 Number 14710/UN31/PP/2015 dated April 28, 2015. Meanwhile, the UT Education Services Policy Letter (semester 2022.1) explains that tutorial assignments in TTM and Tuweb are done by students outside of tutorial hours unless the tutorial assignment is practical or a performance that requires direct guidance and feedback from the tutor and other students in the tutorial class. These two regulations conflict with each other because the Circular Letter of Vice Rector 1 (2015) emphasizes giving tutorial assignments to TTM before the COVID-19 period, while the UT Education Services Policy Letter (2022.1) applies to giving tutorial assignments during the COVID-19 period.

In the Technical Instructions for Implementing UT Webinar Tutorials in the COVID-19 Pandemic Situation Semester 2020/21.1 (2020.2), it is stated that UT student learning outcomes are measured through completing assignments and participation in TTM, Tuton, Tuweb, Practicals, Final Semester Exams, Final Program Assignments, and Scientific Work. TTM and Tuweb grades contribute 50% to a student's final score if they meet the requirements. Based on the data documentation, the final scores of students

participating in the Tuweb Elementary Mathematics Learning Course are classified as very good and have a perfect (very close) relationship with the implementation of Tuweb.

Discussion

The interesting thing about the findings of this research is that the tutor learning devices for preparing to implement Tuweb are not yet complete. However, the percentage score category resulting from observations of Tuweb implementation is classified as very good. This finding contradicts research that found that the completeness of learning tools has a positive and significant influence on student learning outcomes (Mariana, 2018; Riduwan & Akdon, 2013). It also contradicts previous research, which found that the development of learning devices and models had a positive effect on the quality of online learning (Hayani & Sutama, 2022). However, this seems to occur due to learning devices that were not prepared before Tuweb, namely scoring guidelines and assignment design. These two instruments can be created while the lecture is in progress or already underway, although if using an LMS, the weight settings and assessment aspects should be set before the lecture begins. Meanwhile, RAT, SAT, and material in the form of PPt have been completely prepared by the tutor, so basically the lecture flow from the first meeting to the last has been outlined and planned (Aldino et al., 2021; Husnaeni et al., 2022; Sam & Idrus, 2021). The tutor in the assessment, the remainder, adjusts to the scoring guidelines created when the lecture is being or has been completed.

Although statistically the tutor's performance is very good, it still requires further improvement in lesson planning. The absence of scoring guidelines can reduce the tutor's objectivity in assessing. Likewise, it is difficult for students to prepare themselves regarding the indicators they must carry out to get a perfect score in lectures, because these indicators should have been explained at the first meeting (lecture orientation) (Nurlizawati & Syafrini, 2023; Widiyanto, 2022). However, the level of student satisfaction with the implementation of the Tuweb Elementary Mathematics Learning Course is very high. This is proven by their response to the implementation of Tuweb, which is in the very good category. These findings are in accordance with previous research, which found that students were very satisfied with the trend of Tuweb as an online learning service (Umasugi, 2023; Wijayanti et al., 2022).

In general, Tuweb's implementation is in the very good category, but of the 21 statement items, there are only 6 that get a good score. The six statement items relate to the way tutors deliver material, tutor feedback on assignments submitted by students, and involving students in lecture activities. This shows that tutors are greatly assisted by the tutorials that have been created, making it possible for students to study lecture material independently without having to do it synchronously. (Khasanah et al., 2020; Muflikah et al., 2022). Even so, improving the professional competence of tutors must continue to be carried out so that the statistical data for the six statement items (getting a good score) mentioned previously can be improved.

UT considers the role of tutors in implementing Tuweb to be very important, especially in making distance education programs a success (Akhter & Ali, 2016; El Firdoussi et al., 2020). Therefore, most of the tutors at UT have taken tutor training. In fact, every semester before serving, tutors must take part in a perception equation held by UPBJJ-UT. Tutor training trains tutors in the use of Learning Management System (LMS) applications, assessments, assignment writing themes (types of assignments), and required objective evaluations (Kusmaladewi & Zaidin, 2021; Rachmi & Siregar, 2022). Thus, it is hoped that all tutors on duty and who have attended training can carry out tutorials in all the tutorial classes they teach (Peek et al., 2014; Salwa, 2019).

The research results also show that the implementation of Tuweb has a very close or perfect correlation with student learning outcomes. This finding is in accordance with the results of previous research, which found that online learning equipped with tutorials had an influence on student learning outcomes (Parida et al., 2019; Sukardi & Rozi, 2019). These findings also strengthen the theory that tutors must play an active role in motivating students during the tutorial process (Anita, 2017; Sabaniah et al., 2021). That way, students can learn independently by finding and solving problems related to teaching materials that are difficult to understand and assignments given during tutorials (Kismiati et al., 2022; Mira et al., 2021). Tuweb participants can access and study video tutorials, but tutors need to motivate students to complete their education without dropping out of their studies. This is because the main factors in student drop-out from online programs include: time pressure for part-time students; self-management skills; family support; logistics; and support from institutions (Tait, 2018). Therefore, a tutor should be able to motivate students to participate in his tutorial class (Ibrahim et al., 2020; Santoso, 2021).

The existence of tutors in the effective implementation of Tuweb, which is characterized by very good student learning outcomes, is very vital. Moreover, the results of distance learning as carried out by UT have so far become a polemic among stakeholders and the community, especially in mathematics learning (Kusuma & Hamidah, 2020). However, the results of this research provide a different perspective

and have implications for distance learning, which makes it very possible to produce an excellent learning process in applied sciences that requires practice. Through Tuweb and the guidance of tutors for Elementary Mathematics Learning Courses, students obtain excellent final grades (Lukman & Kurniawan, 2021; Wiratomo & Mulyatna, 2020). This shows that implementing learning through Tuweb during and after the COVID-19 pandemic is not an obstacle to getting good grades (Harta et al., 2022; Indrayana & Sadikin, 2020).

Unfortunately, this research only describes the correlation between the implementation of Tuweb and student learning outcomes, so the correlation with other variables has not been revealed and requires in-depth study by future researchers. Likewise, tutor readiness is only based on the completeness of learning plans administratively, so it is highly recommended that future researchers expand the scope of tutor readiness variable indicators, especially technical readiness related to the completeness of learning tools, ability to use learning tools and media, and educational facilities that support the implementation of Tuweb. These suggestions produce research implications regarding the importance of developing tutorial-based learning media. Especially in applied sciences, which require practice, it is possible to carry out lectures asynchronously, allowing students to study independently, and lecture materials can be accessed and studied by students anytime and anywhere.

4. CONCLUSION

This research concludes that: First, the tutor's readiness and performance are in the very good category. Second, the level of student satisfaction with the implementation of Tuweb is in the very high category because they consider the implementation of Tuweb at each stage (of the three stages) to be in the very good category. Third, the implementation of the Tuweb Elementary Mathematics Learning course has a perfect correlation with the students' final scores of S1-PGSD at UPBJJ-UT of Makassar. Based on these conclusions, several suggestions are given to all parties related to this research, including: (1) UT, as the institution responsible for implementing Tuweb, must ensure that tutors can carry out their duties, roles, and responsibilities as tutors. Therefore, training and facilities to support Tuweb activities really must be optimized and maximized for all tutors. (2) Tutors must always improve all their competencies, especially those related to pedagogical and professional competencies, so that they truly master the content (material) and technical (implementation and use of tools, media, and Tuweb-supported applications) of lectures. (3) UT students should familiarize themselves with distance-based (online) learning tools, media, and applications so that they are not only able to participate well in learning at UT but can also respond to current developments outside campus.

5. ACKNOWLEDGMENT

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