

Potential of spherical virtual-based video reality (SVVR) through smartphone in learning Indonesian in the vocational education system

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Abstract - In the lens of technology used in classroom instruction, the 360-video virtual reality begins to use in the education field. This study aimed to identify the Indonesian language students in the higher education level perceptions of the use of SVVR (Spherical Virtual-based Video Reality) which was operated through the smartphone. The performance expectancy (PE) and effort expectancy (EE) in the UTAUT theory was employed to assess the data. There were 131 sophomores who learn the Indonesian language in the tourism department in the State Polytechnic of Bali involved to provide specific arguments through the questionnaire. The result of the study explained that learners in the Polytechnic education system were keen to engage SVVR (Spherical Virtual-Video Based Reality) during the teaching and learning process. Additionally, this learning medium elevated students' urge significantly in learning the Indonesian language. Subsequently, the SVVR will be a promising tool employed by the lecturer who teaches the learners in the applied education system. These learning materials ought to be explored and developed more systematically by lecturers in underpinning students' demand for knowledge and materials understanding in vocational education.

Keywords: Indonesian language, smartphone, SVVR, vocational education

1. Introduction

Digital technology is demanded to assist lecturers and researchers in conducting blended learning that includes asynchronous, synchronous, remote, and face to face learning (Bahari & Salimi, 2021). The necessity of information and communication technology development has led the lecturers to employ several devices in the classroom. Fundamentally, ICT has a potential role to transform the educational field around the world (Ali, 2019). Many platforms are provided and developed to support the need of students in higher education learning activities. The collaboration of institutions on the use of ICT must be conducted significantly to boost the demand of the lecturers and learners in accessing the knowledge or lore during the classroom instructional (Dumpit & Fernandez, 2017). A collaborative environment including traditional and modern methods may overcome the difficulties and challenges faced by the students (Kassem, 2018). In terms of obtaining comprehension, information and communication technology ease the lecturers gain many sources for teaching. Similarly, the mobile-learning enhance learners' urge to explore further the information used during the teaching and learning process.

The use of application mobile technology in learning is a significant challenge for instructional designers and educators (Elaish et al., 2017). The defiance can be faced in designing the learning materials for all education levels. In higher education, vocational colleges, for instance, the implication of positive perception for curriculum designers and teachers is the need for rethinking and redesigning the learning materials to integrate mobile language learning opportunities for students to explore. The mobile-assisted language learning utilization will provide a chance for students to take part in learning activities regardless of time and place (Azli et al., 2018). The use of mobile technology as a tool in foreign language teaching increases learners' language proficiency levels and also enables them to raise their awareness in the language learning process (Yükselir, 2017). Mobile technologies serve as a medium to push learners to pursue their personalised learning (Ma, 2017). Mobile devices which are popular among students are motivational tools to be applied in education and various learning activities (Hashim et al., 2017). In line with that, mobile-assisted language learning is a tool to improve vocabulary learning and general skills development, underrepresenting how mobile technologies can improve reading, writing, listening and oral skills (Persson & Nouri, 2018). It proves that mobile learning also can be beneficial for the learners who study languages which include the English language.

The integration of mobile learning in ESP learning in a traditional classroom can assist learners to develop their learning proficiency (Khan et al., 2019). The employment of mobile learning, smartphone, for instance, indicates that learners may become more autonomous when they use their smartphones for the purposes of practising and learning English (Metruk, 2020). The use of smaller devices leads to the flexibility of the classroom instructional. Learners pursue the lore more effectively and widely which results in higher critical thinking in absorbing the materials given by the teachers or lecturers in the classroom. The m-learning is becoming a salient feature of education in enhancing the learner's cognitive capacity, the learner's motivation to study in both formal and informal settings, the learner's autonomy and confidence, as well as the fact that it promotes personalized learning and helps low-achieving students to reach their study goals (Kacatl & Klímová, 2019). Regarding the students' technology acceptance and their practices specifically on mobile learning for Education 4.0, the tertiary students' perspectives and practices on the use of mobile devices is highly positive (Abd Karim et al., 2018).

In terms of applying the smartphone through the teaching and learning process, many platforms can be advantages for the lecturers delivering the materials. This represents innovation in the education field (Lin & Lin, 2019). The use of modern applications motivates learners to study the lesson effectively. Additionally, the perceptions of students and attitudes towards the use of Kahoot in the EFL classroom were clearly very positive in the four dimensions, namely Fun, Engagement, Motivation, and Utility for Learning. Fun and

Engagement were the most highly-valued dimensions, closely followed by Motivation and Utility for Learning (Cárdenas-Moncada et al., 2020). Collaborative learning and online communication via social media enhances the student's learning activities, knowledge sharing, information exchange, and facilitates discussion with peers (Alalwan et al., 2019). The students who have the impression of using different language learning apps rather than using only one type of app are more likely to gain an understanding of different apps and their possible pedagogical merits for learning different language skills (Nami, 2020). Learning in authentic environments should not be limited to one particular subject so that students may learn other subjects in authentic environments at the same time (Shadiev et al., 2017). This learning method assists the hybrid learning system which includes synchronous, asynchronous, face to face or remote learning. In addition, the demand for sophisticated technology that has the potential to enhance learners' abilities must be explored by the developers. Further innovation on the learning materials must be developed and elaborated especially at the higher education level. The demand for teaching and learning development should not be a barrier as technology has expanded massively. Technology has a potential role to establish more innovation and attracting learners' eagerness during classroom instruction.

The augmented reality and virtual reality technology provide a new experience for the students in learning the lesson during the teaching and learning process. In developing AR as the learning material, the 3D models should be prepared and the framework also should be considered accordingly. Most of the candidate teachers have knowledge about the term but not in detail about the AR technology and its possible use in many settings. Furthermore, augmented reality should be integrated into educational settings and further research should be conducted on the effectiveness of teaching and learning materials that are designed with AR enhancements (Sural, 2018). With regard to the VR applications, this will be a great potential for developers to include it into curricula, and, more importantly, to be accepted by learners and teachers as a learning media and content. This application has the potential to be integrated into the classroom and even used remotely, with or without a head-mounted display (Spilski et al., 2019). Furthermore, the VR-based learning tools have the potential to enrich foreign language learning processes, providing learners with highly immersive real worldlike situations (Berns et al., 2018). By employing the VR-based into the education process, learners could learn the task regularly and repeatedly (Chang et al., 2019). The SVVR is an approach that supports the learners' learning achievements, self-regulation, meta-cognitive awareness, as well as self-efficacy. In addition, this study specified that this approach would not have an effect on students' cognitive load (Wu et al., 2021). The educational use of SVVR is a potential medium to escalate students' way of learning, improving traditional learning, and enhancing students' understanding of content and learning motivation (H. C.-S. Lin et al., 2019). The majority of students stated that SVVR could elevate their learning eagerness and it allowed them to express the contexts deep in the writing content. This implied that with the contextual interaction in SVVR, students obtained tangible lore and in-depth perception in writing, which was very helpful for their learning of descriptive article writing (Huang et al., 2020).

Currently, the development of the 360-video based on the curriculum in the vocational system has not been explored further. Vocational education system concerns the applied knowledge which means that the learners are obliged to practise their skills or ability. Immersing an innovation into the learning medium must be examined to assist lecturers in the higher education system, vocational level for instance, in delivering the knowledge during the teaching and learning process in the classroom. From the statement background that has been elaborated, this study investigates briefly the students' perception on the use of SVVR through smartphone during Indonesian language classroom in the vocational education level.

2. Method

The *unified theory of acceptance and use of technology* (UTAUT) was utilised to collect the data process. The UTAUT involves performance expectancy (PE), effort expectancy (EE),

social influence (SI), facilitating conditions (FC), behavioural intension (BI) and use behaviour (UB). Performance expectancy (PE) means the positive impact and the usefulness of the device. This also means the degree to which an individual believes that technology will assist learners or users in the learning process, while effort expectancy (EE) represents the ease of technology use, stress-free interaction, and importance of use. Social influence (SI) involves the usefulness for the users whereas facilitating conditions, whereas (FC) explains the availability of the system and knowledge to operate the system (Venkatesh et al., 2016). This study focused on the measurement of performance expectancy (PE) on the positive impact and the usefulness of the device and effort expectancy (EE) on the ease and importance of technology towards 131 sophomores who learn the program of tourism in the State Polytechnic of Bali.

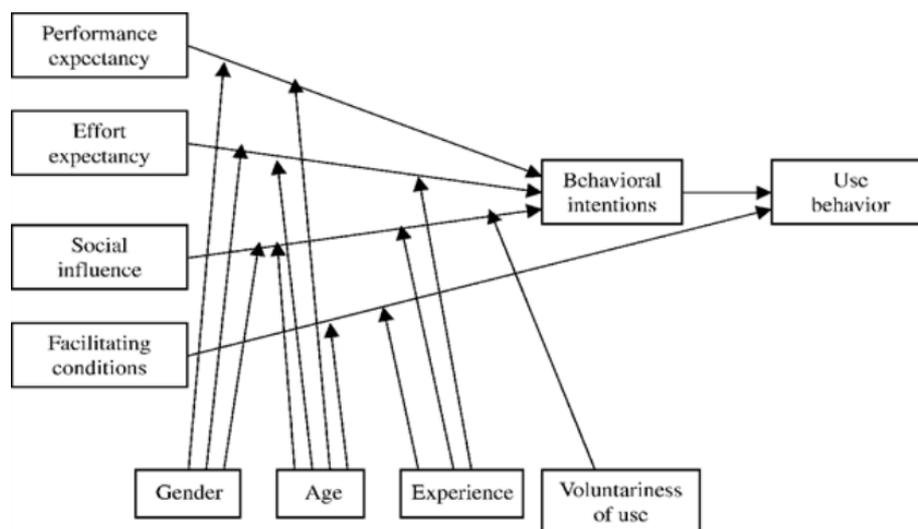


Figure 1 UTAUT (Venkatesh, 2003)

This research employed 10 statements in the questionnaire which represented the performance expectancy and effort expectancy. From the first to fifth item, the statements reflect the positive impact and the usefulness of the device while the sixth to tenth item were asking the ease and importance of technology use. The digital questionnaire based on the performance expectancy (PE) and effort expectancy (EE) from UTAUT theory was deployed as the instrument to receive the participants' data based on 5-point Likert Scale, scales ranging from 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree and 1 = strongly disagree. The items of the questionnaire consisted of five topics that were concerned with the trend of multimodality in the English instructional. A quantitative descriptive method was used to calculate the data collection which then described to elaborate the result.

3. Results and Discussion

According to the Cronbach's Alpha reliability, the minimum coefficient is 0.65 and 0.8 or higher. Based on this research, the coefficient score was 0.830 which meant that all of the data items were valid and can be continued to the next process.

Table 1 Reliability Statistics

Cronbach's Alpha	N of Items
.830	10

This research analyzed the mean, median, and mode of each item that was applied to describe the data generally. Each item data tabulation provided a significance score which can be seen specifically in Table 2 below.

Table 2 Statistics of the questionnaire

	item_1	item_2	item_3	item_4	item_5	item_6	item_7	item_8	item_9	item_10
N Valid	131	131	131	131	131	131	131	131	131	131
Missing	0	0	0	0	0	0	0	0	0	0
Mean	3.94	3.92	3.79	3.80	3.78	3.39	3.56	3.66	3.82	3.55
Median	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	3.00
Mode	4	4	4	4	3	3	4	4	4	3
Std. Deviation	.677	.745	.811	.863	.939	.809	.703	.750	.799	.825
Sum	516	513	497	498	495	444	467	480	501	465

The mean of all items was above 3.0. According to the data, item 1 and item 2 were close to 4.0, while item 10 was 3.55 which means the lowest score. The score of item number 4 was 3.80 compared to item 9 was 3.82. The mean score of item 3 and item 5 were 3.79 and 3.78 respectively. The total number of items 7 and 8 were slightly above 3.5, it was 3.56 and 3.66. This means that most of the respondents chose to agree with almost all of the questionnaires given by the researchers. On the other hand, only the score of the item 6 was below 3.5, the amount of the score was 3.39, this was the lowest score counted in this research. According to the median data of the study, almost all of the items scored 4.00. Based on the data, only items 6 and 10 were 3.00. This means that the students mostly chose neutral on items 6 and 10. In terms of the mode data, there were 7 items that showed that option 4 was mostly chosen by the learners. The students chose option 3 mostly on items 5, 6 and 10, this means that the neutral option was mostly chosen on these items of the questionnaire. For the specific comprehension, further systematic data was calculated and elaborated from table 3 to table 12 below.

Table 3 Students' opinion on the positive experience on the use of video-360 for Indonesian language

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2	3	2.3	2.3	2.3
3	25	19.1	19.1	21.4
4	80	61.1	61.1	82.4
5	23	17.6	17.6	100.0
Total	131	100.0	100.0	

Table 3 represents the question of item 1 and the highest option chosen in this item was 4. There were 80 learners or 61.1% of respondents chose the option, which means most of the students agreed that the device brings a positive experience for an Indonesian language lesson. The least number of learners chose to disagree, specifically, it was only 3 people who select this option. The total number of respondents who chose neutral on this item was 25 or 19.1%, while there were 23 or 17.6% who totally agreed that this video-360 provided a positive experience for Indonesian language learning.

Table 4 Students' opinion on the increase of learners' eagerness to study Indonesian language in the classroom

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2	6	4.6	4.6	4.6
3	24	18.3	18.3	22.9
4	76	58.0	58.0	80.9
5	25	19.1	19.1	100.0
Total	131	100.0	100.0	

According to the second item, most of the learners agree that this technic enhanced the learners' urge to learn the Indonesian language during the classroom instructional. Option 4 was chosen by 76 or 58% respondents, while there were only 6 or 4.6% learners who thought that this technic would not enhance the students' eagerness. There were 24 or 18.3% and 25 or 19.1% of respondents who select the neutral and totally agree respectively. The data explained that the video-360 was a device that had a potential role to elevate learners' keenness to learn the Indonesian language in the Polytechnic education system.

Table 5 Students' opinion about the significant role of video-360 to learn Indonesian language better

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	9	6.9	6.9	6.9
	3	32	24.4	24.4	31.3
	4	67	51.1	51.1	82.4
	5	23	17.6	17.6	100.0
	Total	131	100.0	100.0	

In terms of the efficiency of video-360 for Indonesian language instruction, learners agreed that this platform provides simplicity for the teaching and learning activities. There were 67 or 51.1% who agreed, while 9 or 6.9% people disagreed on the efficiency of this platform for the Indonesian language lesson. The respondents who totally agreed on this opinion were 23 or 17.6%, compared to the learners who chose neutral were 32 or 24.4%. From this data, students tended to agree that video-360 was a better strategy used in learning the Indonesian language.

Table 6 Students' opinion on the new learning method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	1.5	1.5	1.5
	2	7	5.3	5.3	6.9
	3	31	23.7	23.7	30.5
	4	66	50.4	50.4	80.9
	5	25	19.1	19.1	100.0
Total	131	100.0	100.0		

With regard to the respondents' opinion on the use of the video-360 as the new learning method, 66 or 50.4% out of 131 people agreed that this media was a new learning method. On the other hand, there were 2 or 1.5% who totally disagreed that this platform was a new learning strategy. There were 31 or 23.7% of learners who chose neutral, while 25 or 19.1% was strongly agree with the use of this device as a new learning method. There were only 7 or 5.3% of students who disagreed about this opinion. By this data, learners believed that this learning media was a new learning strategy that can be utilized for the classroom instructional.

Table 7 Students' opinion on the demand on the internet access in using the video-360

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	8	6.1	6.1	6.9
	3	45	34.4	34.4	41.2
	4	42	32.1	32.1	73.3
	5	35	26.7	26.7	100.0
Total	131	100.0	100.0		

Regarding the demand on the digital network or internet in operating the video-360, students tended to select neutral mostly. The highest number of learners chose neutral, it accounted for 45 or 34.4%, while only 1 person or 0.8% totally disagreed on this question. There were 42 or 32.1% agreed, while there 8 or 6.1% respondents disagree on the need for high internet bandwidth in watching this media. According to the totally agree option, there were 35 or 26.7% of learners chose this option. This means that the high internet bandwidth was mostly demanded by the learners to obtain a proper display in learning the Indonesian language.

Table 8 Students' opinion on the simplicity in using the video-360

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	14	10.7	10.7	11.5
	3	59	45.0	45.0	56.5
	4	47	35.9	35.9	92.4
	5	10	7.6	7.6	100.0
	Total	131	100	100	

Similar with the data of the demand on the internet access in using video-360, learners' argument on the simplicity in applying video-360 showed a high tendency to choose neutral. according to the data, 59 or 45% students thought that this platform was not easy or hard to use, compared to the totally disagree option, only 1 or 0.8% learners opined that the platform is not easy to apply. There were 47 or 35.9% respondents confirmed that the video-360 was simple to utilize and operate during the teaching and learning process. With regard the disagree option, there were 14 or 10.7% respondents did not agree on this statement, while 10 or 7.6% was totally agree on the convenient in using the video-360 during the classroom instructional.

Table 9 Students' opinion on the use of smartphone in watching the video-360

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	4	3.1	3.1	3.8
	3	55	42.0	42.0	45.8
	4	62	47.3	47.3	93.1
	5	9	6.9	6.9	100.0
	Total	131	100	100	

The use of smartphone in running this platform was favored by the learners, the data mentioned that there were 62 or 47.3% students agreed that the smaller device, for instance, smartphone was the suitable technology to run the video-360 compare to the totally disagree option was chosen by only 1 or 0.8% respondent. Additionally, the data of neutral was 55 or 42% out of 131 respondents. There were only 4 or 3.1% chose disagree, while 9 or 6.9% students tended to totally agree on this statement. This proves that the use of smaller device was still mostly selected by the millennials.

Table 10 Students' opinion on the easiness to access the video-360 during the Indonesian language lesson

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	3.1	3.1	3.1
	3	54	41.2	41.2	44.3
	4	55	42.0	42.0	86.3

5	18	13.7	13.7	100.0
Total	131	100.0	100.0	

In accessing the learning materials given in the classroom, it must be easy to obtain the media in easing the learners to study from the materials given in the classroom. Concerning the utilization of video-360, the students thought that it was easy to access this platform. There were 55 or 42% learners agreed, while only 4 or 3.1% students disagreed on this statement. The data showed there were 18 or 13.7% respondents totally agreed on this question. This means that video-360 could be easy to operate, this also supported by the smartphone utilization through the teaching and learning process.

Table 11 Students' opinion on the suitable of smartphone used in moving the video-360 to watch the spherical environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	9	6.9	6.9	6.9
	3	28	21.4	21.4	28.2
	4	71	54.2	54.2	82.4
	5	23	17.6	17.6	100.0
	Total	131	100	100	

The benefit of applying the video-360 to the classroom instructional was the users could see the spherical environment from the smartphone. The smaller device assisted learners to move it in seeing the environment on the video-360. There were 71 or 54.2% learners agreed that smartphone was suitable device to run the platform. In contrast, there were 28 or 21.4% students chose neutral on this question, while 23 or 17.6% learners select totally agree about the suitable of smartphone to operate the video-360. In terms of the disagree option, 9 or 6.9 people were counted. From the data, the learners believed that the most suitable device to enjoy the video-360 was smartphone.

Table 12 Students' opinion on the quality of the video-360

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	7	5.3	5.3	6.1
	3	60	45.8	45.8	51.9
	4	45	34.4	34.4	86.3
	5	18	13.7	13.7	100.0
Total		131	100	100	

Regarding the video quality, learners mostly thought it was favourable video classification. Although there were 60 or 45.8% learners chose neutral, the number of learners choosing agree was 45 or 34.4% compared to the disagree and totally disagree, it was 7 or 5.3% and 1 or 0.8% respectively. The total number of students who chose totally agree were 18 or 13.7%.

In terms of the virtual reality use in the education, it has a potential to boost learners motivation to learn Indonesian language. Furthermore, it is still favoured by the students in absorbing the lore during the teaching and learning process in the classroom. Through recent development, mobile learning could be one of the promising educational technologies which could run the virtual reality smoothly (Hamidi & Chavoshi, 2018). Virtual reality applications offer bright opportunities for both involvement students in the foreign language learning process and achieving three main goals of this discipline successfully: enhancing foreign language learning, preparing under-graduates for real life and professional situations outside the native language environment, improving student communication skills (Symonenko et al.,

2020). By supporting the teachers in the task of changing their idea of teaching and learning, more effective use of education technology can be achieved (Englund et al., 2017). With the immersion of Edtech into the teaching and learning process, the advantages could be obtained by the teachers and learners. Modern ICTs have widened the spectrum of innovation by including emails, synchronous chat, asynchronous discussion groups, and the many types of web-based tools. Despite the diversity of ICTs, a thorough approach to technology integration is still a topic of discussion (Abdu, 2018). The innovation including the utilization of SVVR 360o-video gained a positive impact on the learning process. High demand for the use of this tool was requested by the learners in the higher education system, especially at the vocational level.

According to the performance expectancy (PE) which focused on the positive impact and the usefulness of the device. The technology integration allows teachers to be more creative and more effective in their teaching and it motivates learners to be engaged in classroom activities (Gilakjani, 2017). Students totally agreed that video-360 provided a positive experience for Indonesian language learning. A positive attitude toward technology watched the videos more than those with a less positive attitude (Repetto et al., 2021). The data also explained that the video-360 was a device that had a potential role to elevate learners' keenness to learn the Indonesian language in the Polytechnic education system. The video-360 could be utilized as a sophisticated tool in learning the Indonesian language. Furthermore, students who underwent the training with 360°videos learned more words than students belonging to the control group, even after controlling for the number of videos views (Repetto et al., 2021). The learners believed that this learning medium was a new learning strategy that can be utilized for classroom instructional. However, the high internet bandwidth was mostly demanded by the learners to obtain a proper display in learning the Indonesian language. In terms of the effort expectancy (EE) which concerned with the ease and importance of technology, the learners agree on the convenience of using the video-360 during the classroom instructional. The use of the smaller device was mostly selected by the millennials. Therefore, choosing to implement the smaller devices into the curricula have the potential to develop learners ability in learning the lesson (Essel et al., 2018). Mobile assisted language learning offers a promising way to support learners activities in Indonesian Higher Education (Yudhiantara & Saehu, 2017). With the support of the smartphone in running the SVVR video, the flexibility was gained by the learners during the classroom instructional. The video-360 could be easy to operate, this is also supported by the smartphone utilization through the teaching and learning process. The learners believed that the most suitable device to enjoy the video-360 was the smartphone. The students mostly thought it was a favourable video classification.

On the other hand, although the use of smartphones may substantially enhance the foreign language learning process, a number of studies have highlighted certain limitations on using smartphones in higher education settings. One of the drawbacks is represented by smartphone addiction, which is being increasingly examined by researchers worldwide (Metruk, 2019). The multimodal resources involving audio, visual, and spatial must be explored more to enhance the use of SVVR in the classroom instructional (Morell, 2015).

4. Conclusion

SVVR is a promising medium to boost students' motivation to learn a language. The learners believe that VR technology has the potential to assist them in escalating their language ability. The ease to run and access the SVVR contributes to the higher education students learning a language. In the Indonesian language classroom, students propose the use of contemporary tools to study. The SVVR may contribute to the learners' language skills. The combination of audio, spherical video, text, and image tend to be beneficial for the students to learn the Indonesian language. By listening to the audio, watching the sphere video, reading the text, and analysing the image simultaneously, learners have a wide opportunity to expand their speaking, listening, reading and writing skills in the Indonesian language. Furthermore, The SVVR

advantages could be applied as the teaching and learning approach to the other language. However, specific and brief exploration must be conducted to discover the benefit of SVVR use in learning other languages.

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