A Survey of WhatsApp as a Tool for Instructor-Learner Dialogue, Learner-Content Dialogue, and Learner-Learner Dialogue

Ebrahim Panah, Muhammad Yasir Babar

Abstract—Thanks to the development of online technology and social networks, people are able to communicate as well as learn. WhatsApp is a popular social network which is growingly gaining popularity. This app can be used for communication as well as education. It can be used for instructor-learner, learner-learner, and learner-content interactions; however, very little knowledge is available on these potentials of WhatsApp. The current study was undertaken to investigate university students' perceptions of WhatsApp used as a tool for instructor-learner dialogue, learner-content dialogue, and learner-learner dialogue. The study adopted a survey approach and distributed the questionnaire developed by Google Forms to 54 (11 males and 43 females) university students. The obtained data were analyzed using SPSS version 20. The result of data analysis indicates that students have positive attitudes towards WhatsApp as a tool for Instructor-Learner Dialogue: it easy to reach the lecturer (4.07), the instructor gives me valuable feedback on my assignment (4.02), the instructor is supportive during course discussion and offers continuous support with the class (4.00). Learner-Content Dialogue: WhatsApp allows me to academically engage with lecturers anytime, anywhere (4.00), it helps to send graphics such as pictures or charts directly to the students (3.98), it also provides out of class, extra learning materials and homework (3.96), and Learner-Learner Dialogue: WhatsApp is a good tool for sharing knowledge with others (4.09), WhatsApp allows me to academically engage with peers anytime, anywhere (4.07), and we can interact with others through the use of group discussion (4.02). It was also found that there are significant positive correlations between students' perceptions of Instructor-Learner Dialogue (ILD), Learner-Content Dialogue (LCD), Learner-Learner Dialogue (LLD) and WhatsApp Application in classroom. The findings of the study have implications for lectures, policy makers and curriculum developers.

Keywords—Instructor-learner dialogue, learners-contents dialogue, learner-learner dialogue, WhatsApp.

I. INTRODUCTION

LEARNING is regarded as collaborative interactions between teacher and students, students and students, and students and contents [1]. Learning can happen in the context of classroom or through e-learning [2]. According to [3], e-learning is a learning that takes place through the web, which is an efficient way of learning involving advanced applications. One of the requirements of practicing online learning is using smartphones and tablets which are compatible different applications. Students make use of cellphones for their communications in and out of universities

Ebrahim Panah is with the University College of Yayasan Pahang.
Muhammad Yasir Babar Panah is with the Thompson Rivers University, Canada (e-mail: yk16135@gmail.com).

which could be used for e-learning and online learning [2]. This approach supports learning outside the class context via online discussion forums. This kind of learning allows the usage of online applications with the purpose of helping students to enhance new knowledge as well as acquire new techniques. One of the commonly used applications which is compatible with mobile phones with different platforms (Android, IOS, and Windows) is WhatsApp, which is a free tool used for free communication. This application enables users to learn anytime, anywhere.

Reference [4] noted that WhatsApp can be utilized for group learning as a key feature that lends support to learning in various environments [2]. Learning through WhatsApp assists users in advancing their communication skills via instant feedbacks provided by teachers in informal learning settings [5]. The communication skills can be used for general and education purposes. Some scholars observed that this tool offers pleasant teaching aids that help teachers and students in the process of teaching and learning [6]. Hence, using social networks such as WhatsApp through smart phones in pedagogy provides the users with enjoyable learning experiences [2], [7]-[9]. Reference [7] discussed the use of social network for developing learning communities in formal and informal contexts. The researcher benefited from semi-structured interview, WhatsApp discussion and focus groups to collect data. The findings showed that WhatsApp offers an instant and open communication environment for e-learning and online learning communities. Reference [2] attempted to investigate WhatsApp as a learning tool by involving 40 students in a survey. They found that students' communication skills improved following WhatsApp dialogue. Students' learning improved as their confidence and quick response were enhanced in information processing. They reported that some features of WhatsApp such as rapid response, enjoyable learning environment, and open communication in formal and informal contexts offer pleasant learning experiences. Reference [9] discussed the participants' perception of social network and indicated that the students had a positive attitude towards social network for learning. The researcher also found that, based on multiple regression analysis, experience with social network and subject norm accounts for something unique in predicting participants' attitudes. They concluded that social network could be utilized as a motivational, supportive learning tool in EFL classes by providing enjoyable learning environment. Reference [8] carried a qualitative study through focus group interview to obtain information students

and lecturers' attitudes towards using WhatsApp for English language learning. The finding of thematic analysis showed that WhatsApp is utilized in language teaching instruction for language learning support, information exchange, and language practice, which are achieved through teacher-directed learning, autonomous learning, and peer learning instructional strategies. Overall, students and lecturers had positive attitudes towards using WhatsApp for language learning though some lecturers were reserved towards using this tool. Thus, WhatsApp ought to be leveraged to support autonomous and peer learning, where instructors are repositioned as facilitators to develop learning community. However, pedagogical study in the use of WhatsApp as a tool for ILD, LCD, and LLD is scare in literature, particularly in Malaysian context.

WhatsApp?

WhatsApp is a social network application that is compatible with the new generation smartphones with Android, IOS, and Windows platforms. This application offers free texting, audio calling and video calling. This app supports many different message and file types. Currently, this application is the most popular social media with around 2 billion users from 180 countries [9], [32].

ILD

ILD refers to the interaction and communication between lecturer and students. The communication between teachers and students is normally extended beyond classroom limitations in terms of time and place. This kind of communication can impact students' social, emotional and academic development [10]. This type of communications is facilitated by social networks and instant messaging services. Reference [10] investigated teacher-student relationship and classroom environment through WhatsApp by adopting a survey approach and involving 155 school teachers. The obtained data from teachers' self-reported questionnaires indicated that teachers' use of WhatsApp is connected with better relationships with students as well as better classroom environment. Reference [11] discussed teacher and students interaction through classroom WhatsApp groups. The researchers benefited from triangulated data collection method using questionnaire, personal interview and focus groups involving 88 school students. The combined results indicate that classroom WhatsApp group can be used as a central channel of communication for school topics. It is primarily utilized for sending and receiving updates as well as managing learning activities. It can also be used for enforcing disciplines by teachers. They also found that some features like easy access, safeguarding personal privacy, creating communities, and communication format are appealing to students. They reported, however, communication overload could challenge teacher ability to monitor and influence student interactions.

Reference [12] investigated real-time class management nature using WhatsApp platform. He agrees that this tool offers real-time communication, on-going feedback, assessment and evaluation. In a survey involving 100 students,

[13] showed that WhatsApp improves communication between instructors and students in which 70% of students had positive attitudes towards using WhatsApp a communication tool in class.

LCD

LCD is associated with interaction between learner and contents posted by the teacher on social network like WhatsApp. This type of interaction can help them improve their learning. Reference [14] analyzed and discussed two online teacher education courses through WhatsApp involving a total of 80 participants. The researchers adopted a mixed method approach to examine cognitive, social and teaching presences in the posts by teachers during the course. The findings indicated the evidence of these presences and showed that emojis have a leading role in WhatsApp communication to keep the students on the task.

LLD

LLD is connected with interaction between students though social network like WhatsApp. Reference [15] conducted a qualitative study using interview and open-ended questions to explore university students' perceptions of educational interaction through social media. The researcher reported the prominence of learner-learner and learner-content interactions than instructor-learner in using social media for education. Reference [16] conducted a survey involving university students and found that WhatsApp can improve the process of teaching students' learning skills where students can have interaction in a friendly environment outside the classroom with each other and instructor in studying course materials and doing assignments. Reference [17] conducted a survey and found that WhatsApp significantly improves students' language learning and enhances language proficiency.

WhatsApp Application (WA)

WA refers to the use of WhatsApp by students. Reference [18] examined university students' use of WhatsApp for personal and educational purposes as well as their perceptions of formal integration of this tool into their education. The researcher adopted a survey distributing questionnaires to a sample of 154 students. The findings indicated that the use of WhatsApp was common among students. Although the application of WhatsApp was common for personal use, its application of education was limited. The participants perceived WhatsApp integration into education as easy, useful and fun.

II. THE THEORETICAL FRAMEWORK

a) Constructivism Approach

WhatsApp learning entails learners actively participating in the learning process. This is promoted by the constructivism theory that perceives learning as a process which is engaging. This theory examines the significant role of learner in acquiring knowledge and learning process. Here, learner has an important role in constructing information based on their creativities and views [19]. Mental constructions are

subjective as new knowledge and information are linked to the learner's previous knowledge. It is argued that this theory supports online learning through social networks [20], [21]. Social negotiation that is an important feature of social networks such as WhatsApp is an essential test of knowledge based on this theory [22]. Despite the current pedagogy, WhatsApp platform does not involve a teacher teaching new skill in classroom setting and the students listen and get insights [23]. Teachers are regarded as a useful tool in learner's learning process as they act as a guide by side than sage on the stage in encouraging learners to build knowledge in accordance with their understanding. Unlike Facebook, WhatsApp is a secure and confidential social platform which enhances learning via improving communication skills [24]. Using advanced instruction design WhatsApp can help as a useful tool in teaching different subjects [25].

b) Transactional Distance Approach

It is believed that the theory of transactional distance approach (TDA) supports the affordances and benefits of WhatsApp for learning [26]. Reference [27] developed TDA theory. According to TDA theory, transaction distance is regarded as a pedagogical concept than physical distance separating the teacher and students from each other [2]. Nevertheless, there could be a distance even when the teacher and students are interacting in classroom [28]. Hence, there is a dire need calling for unique teaching and learning techniques as well as strategies in order to minimize it. TDA applies two sets of variables, i.e., structure and dialogue. Essentially, structure is fundamental as it indicates the flexibility and rigidity of a pedagogical program in terms of its learning aims, teaching styles, and appraisal methods, demonstrating that transactional distance is apparently lower in programs with more dialogue that have predetermined compositions like WhatsApp learning [26]. According to [28] dialogue involves instructor-learner communication in which the instructor provides instructions and the learners respond accordingly. The nature and degree of conversation mainly rely on some factors such as education philosophy, environmental factors, the course designer, course content, and specifically instructor and learners' personalities. The success of education is associated with the instructor focusing on instructor-learner interaction, learner-content interaction, and learner-learner-interaction. According to [19], transaction distance is a trait of all educational programs that lend support to learning process via behavior change to assist learners in achieving their educational objectives. Nevertheless, the differences in such programs are rooted in the structure and dialogue extent, dialogue interaction, and student's trait [29], [30]. Reference [15] is of opinion that instead of taking an approach based on technological determinism, the learning context and social media affordance are crucial. Concerning WhatsApp as a learning tool, [31] explicates that the success of this app relies on the learners adhering to the instructor's instructions and learning guide as per. Therefore, this discussion may provide adequate evidence that WhatsApp, with high degree of dialogue with learners interacting in group discussion with little predetermined structure despite classroom learning, is an effective and useful tool for supporting instructor-learner, learner-content, learner-learner dialogues in the process of teaching and learning.

III. RESEARCH OBJECTIVES

The objectives of the current study were to:
1. Identify Students' perceptions of WhatsApp as tool for ILD
2. Identify Students' perceptions of WhatsApp as tool for LCD
3. Identify Students' perceptions of WhatsApp as tool for LLD
4. Identify Students' perceptions of WhatsApp as tool for WA Dialogue
5. Examine the relationship between ILD, LCD, , LLD, and WA.

IV. METHODOLOGY

Research Design

The purpose of this study was to identify WhatsApp as a tool for ILD, LCD, LLD, and WA, and to find their relationships with WA. The present study adopted a survey approach to collect data from students.

Context of the Study

The study was conducted in University College of Yayasan Pahang (UCYP), Kuantan, Pahang, Malaysia. The rationale for the selection of UCYP as the study context is that lectures are widely using WhatsApp for teaching different subjects. However, it is not clear how students perceive WhatsApp for learning subjects. Hence, it appears that the present study is timely.

Sampling Method

The study selected its samples through purposive sampling approach. The justification is that these students are using WhatsApp for different subjects.

Participants

The participants of the present study comprise 54 students (11 males and 43 females) from UCYP.

Instrument

The study adapted the questionnaire items from a study by [2]. The questionnaire comprises five sections: Participants' Demographics, ILD (11 items), LCD (20 items), LLD (13 items), and WA (4 items). The questionnaire was created by using Google Forms. The reliability of the questionnaire was also established and it was found that the instrument is reliable.

Data Analysis Techniques

The obtained data were analyzed using descriptive analysis (frequency, percentage, mean, and standard deviation) and inferential statistics (correlation) using SPSS version 20.

Procedure

The study first selected 54 students studying at UCYP through purposive sampling. Prior to data collection, the researchers sent consent forms to students and pointed out that the participation in the study is voluntary and they can withdraw from the study at any stage without any consequences. It was mentioned that the data will only be used for the purpose of this study and will remain confidential. Besides, in the online questionnaire, they were not asked to provide personal contact or name. Subsequently, the researchers shared the questionnaire link with students through WhatsApp (in WhatsApp group). The students had 2 weeks to fill out the questionnaire. The gathered data through Google Forms was converted to excel file and saved to Microsoft Excel 2010. Then, the data were coded and sent to SPSS version 20. In the SPSS, the descriptive statistics such as frequency, percentage, mean and STD was performed. The study also ran correlation to find the relationship between variables. The result of data analysis is presented in the next section.

V. RESULT

This section presents the result of data analysis covering participants' demographics, reliability of constructs, descriptive analysis of ILD, descriptive analysis of LCD, descriptive analysis of LLD, descriptive analysis of WA, and correlation between variables subsequently.

A. Participants' Demographics

TABLE I
PARTICIPANTS' DEMOGRAPHICS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	11	20.0	20.4	20.4
	female	44	78.2	79.6	100.0
	Total	54	98.2	100.0	
Missing	System	1	1.8		
Total		55	100.0		

As illustrated in Table I, in total 55 students participated in the study from which 78.2% (43) are females, 20% (11) are males. It shows that data from one participant WERE missing. This means that 98.2% (54) participants answered the questions completely.

B. Reliability

TABLE II
RELIABILITY STATISTICS OF ILD

Cronbach's Alpha	N of Items
.937	11

As indicted in Table II, the construct ILD with 11 items has the reliability index of .937. This means that the there is a strong internal consistency between the items of this construct making it a suitable factor for data collection and analysis.

TABLE III
RELIABILITY STATISTICS OF LCD

Cronbach's Alpha	N of Items
.969	20

As indicted in Table IV, the construct LCD with 20 items has the reliability index of .969. This means that the there is a strong internal consistency between the items of this construct making it a suitable factor for data collection and analysis.

TABLE IV
RELIABILITY STATISTICS OF LLD

Cronbach's Alpha	N of Items
.964	13

As indicted in Table IV, the construct LLD with 13 items has the reliability index of .964. This means that the there is a strong internal consistency between the items of this construct making it a suitable factor for data collection and analysis.

TABLE V
RELIABILITY STATISTICS OF WA

Cronbach's Alpha	N of Items
.926	4

As indicted in Table V the construct WA with 4 items has the reliability index of .926. This means that the there is a strong internal consistency between the items of this construct making it a suitable factor for data collection and analysis.

C. Descriptive Analysis of ILD:

TABLE VI
DESCRIPTIVE STATISTICS OF ILD

Item	Mean	Std.
ILD1: Remind us of upcoming assignments to start work and organize my time	3.70	.861
ILD 2: It is easy to reach the lecturer.	4.07	.821
ILD 3: The instructor finds time to respond if there are queries.	3.93	.821
ILD 4: The teacher encourages my participation.	3.94	.834
ILD 5: The instructor aids in problem identification areas in my study.	3.69	.797
ILD 6: Teachers responds on time to our questions and comments.	3.85	.684
ILD 7: Teachers support us digest the misunderstood or the unclear contents facing us.	3.83	.746
ILD 8: The instructor gives me valuable (positive and negative) feedback on my assignments.	4.02	.665
ILD 9: The instructor is supportive during course discussion and offers continuous support with the class.	4.00	.673
ILD 10: The instructor continually models appropriate disclosure.	3.87	.728
ILD 11: The instructor provides students with links to a relevant video or article.	3.87	.702

As indicated in Table VI, the item it is 'easy to reach the lecturer' has the highest mean value (4.07), while the item 'The instructor aids in problem identification areas in my study' possesses the lowest mean score (3.69). The second item with high mean value is 'The instructor gives me valuable (positive and negative) feedback on my assignments' (4.02), followed by the item 'The instructor is supportive during course discussion' (4.00). The item 'The teacher encourages my participation' has the mean value of 3.94, followed by the items 'The instructor finds time to respond if there are queries' (3.93), 'The instructor provides students with links to a relevant video or article'(3.87), 'The instructor continually models appropriate disclosure' (3.897), 'Teachers responds on time to our questions and comments' (3.85),

'teachers support us digest the misunderstood or the unclear contents facing the us' (3.83), and 'Remind us of upcoming assignments to start work and organize my time' subsequently.

D. Descriptive Analysis of LCD

TABLE VII
DESCRIPTIVE STATISTICS OF LCD

Item	Mean	Std.
LCD1: WhatsApp allows me to academically engage with lecturers and materials at anytime and anywhere.	4.00	.673
LCD2: It allows students time to think about response.	3.94	.738
LCD3: Interaction via WhatsApp with the class content helped me to increase my confidence level in class activity.	3.94	.738
LCD4: Allows tracking of work throughout project cycle.	3.87	.646
LCD5: Allows students to demonstrate mastery of course concepts.	3.91	.652
LCD6: The internet connection is good outside and within the university.	3.78	.839
LCD7: I have time to learn to use the resources provided.	3.78	.646
LCD8: All the comments, pictures, or video were posted in the WhatsApp were appropriate.	3.89	.691
LCD9: I have opportunity to interact with the resources provided.	3.93	.723
LCD10: We have Interactive content that gives direct and frequent performance.	3.91	.680
LCD11: Provides a space to discuss team assignments.	3.93	.723
LCD12: The discussion questions encourage students to share relevant experiences and examples.	3.93	.669
LCD13: Course resources and materials that were perceived to be helpful in completing course requirements and assignments.	3.87	.646
LCD14: It helps to send graphics such as pictures or charts directly to students.	3.98	.687
LCD15: It allows free unlimited messaging.	3.87	.754
LCD16: I actively engaged with course materials that I identify to be secondary resources.	3.87	.674
LCD17: Teacher used to send personalized feedback on these assignments.	3.87	.674
LCD18: It is a good app for exchanging information.	3.93	.696
LCD19: Audio learning guides are sent to learners.	3.91	.680
LCD20: Here, out of class extra learning materials and homework provided.	3.96	.699

As shown in Table VII, WhatsApp allows students to academically engage with lecturers' materials anytime, anywhere (4). Students acknowledge that the internet connection is good outside and within the university (3.78). They have time to learn to use the resources provided through WhatsApp (3.78), and it helps them to send graphics such as pictures or charts directly to students (3.98). Out of class extra learning materials and homework are provided through this app (3.96). Using this app provides students with sufficient time to think about response (3.94). Interaction via WhatsApp with the class content helped students to increase their confidence level in class activity (3.94). WhatsApp provides a space to discuss team assignments (3.93); the discussion questions encourage students to share relevant experiences and examples (3.93). It is a good app for exchanging information (3.93) and it offers the opportunity to interact with the resources provided (3.93). Audio learning guides are sent to learners (3.91) via this app. The app allows students to demonstrate mastery of course concepts (3.91) and have interactive content that gives direct and frequent performance (3.91). All the comments, pictures, or video posted through WhatsApp are appropriate (3.89) and the app allows tracking of work throughout project cycle (3.87). Course resources and materials posted on WhatsApp were helpful in completing course requirements and assignments (3.87). It allows free unlimited messaging (3.87) and enables students to actively engage with course materials that they identify to be secondary resources (3.87). The teacher used to send personalized feedback on these assignments (3.87).

E. Descriptive Analysis of LLD

TABLE VIII
DESCRIPTIVE STATISTICS OF LLD

Item	Mean	Std.
LLD1: The Course WhatsApp group offers communication with others	3.96	.699
LLD2: WA is a good tool for knowledge sharing with others.	4.09	.708
LLD3: My interaction with students using WhatsApp was clear.	3.93	.749
LLD4: We can interact with others through the use of group discussions.	4.02	.714
LLD5: Interaction via WhatsApp with other students in the class helped me to increase my confidence level in class activity.	3.94	.738
LLD6: Teaching guides provided that oversights reflection and discussion aid interaction among learners.	3.89	.691
LLD7: Engages students in ongoing social interaction.	3.91	.680
LLD8: We practice together the application skills.	3.89	.691
LLD9: It allows to be followed in path of conversation.	3.83	.637
LLD10: Using WhatsApp helped me to discuss information with other students in the class.	3.93	.696
LLD11: WhatsApp allows me to academically engage with peers anytime and anywhere.	4.07	.723
LLD12: Activities in the group require students' cooperation, result sharing, and impacts students learning life.	3.96	.726
LLD13: WhatsApp offers a telephone call for communication with other students.	4.00	.707

As indicated in Table VIII, WA is a good tool for knowledge sharing with others (4.09), and it enables students to academically engage with peers anytime, anywhere (4.07). It allows to be followed in path of conversation (3.83) and students can interact with each other through the use of group discussions (4.02). WhatsApp offers a telephone call for communication with other students (4.00). The Course WhatsApp group offers communication with others (3.96), and activities in the group require students' cooperation, result sharing, and impact students learning life (3.96). Interaction via WhatsApp with other students in the class helped them to increase their confidence level in class activity (3.94). Their interaction with peers using WhatsApp was clear (3.93). Using WhatsApp helped them discuss information with other students in the class (3.93) and engage students in ongoing social interaction (3.91). They were able to practice together the application skills (3.89). Teaching guides showed that oversights reflection and discussion support interaction among learners (3.89).

F. Descriptive Analysis of WA

WhatsApp provides students with free call (4.07) to communicate with each other. Students can also use WhatsApp to share their responses (3.96). It is easy for students to contact the instructor through WhatsApp (3.98) and they will be able to academically engage with lecturers' materials anytime, anywhere (4).

TABLE IX
DESCRIPTIVE STATISTICS

Item	Mean	Std.
WA1: Reminds us of upcoming assignments to start work and organize our time.	3.96	.726
WA2: It is easy to contact the instructor.	4.00	.700
WA3: WhatsApp allows me to academically engage with lecturer's materials anytime and anywhere.	3.98	.714
WA4: WhatsApp offers a telephone call for communication with other students.	4.07	.773

G. Correlation between Variables

TABLE X
CORRELATIONS BETWEEN ILD AND WA

		ILD	WA
ILD	Pearson Correlation	1	.717**
	Sig. (2-tailed)		.000
	N	54	54
WA	Pearson Correlation	.717**	1
	Sig. (2-tailed)	.000	
	N	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table X, data show that the sig value is .000. This means that there is a strong, significant relationship between ILD and WA. Hence, ILD strongly predicts students' use of WhatsApp.

TABLE XI
CORRELATIONS BETWEEN LCD AND WA

		LCD	WA
LCD	Pearson Correlation	1	.866**
	Sig. (2-tailed)		.000
	N	54	54
WA	Pearson Correlation	.866**	1
	Sig. (2-tailed)	.000	
	N	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

As illustrated in Table XI, data indicate that there is a strong significant relationship between LCD and as sig is .000. This means that LCD strongly predicts students' use of WhatsApp.

TABLE XII
CORRELATIONS BETWEEN LLD AND WA

		LLD	WA
LLD	Pearson Correlation	1	.878**
	Sig. (2-tailed)		.000
	N	54	54
WA	Pearson Correlation	.878**	1
	Sig. (2-tailed)	.000	
	N	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table XII, there is a strong significant relationship between LLD and WA as the value of sig is .000. This means that LLD strongly predicts students' use of WhatsApp.

As illustrated in Table XIII, the variables ILD, LCD, LLD, and WA all are strongly correlated; hence, an increase in one construct raises the value of another construct.

TABLE XIII
CORRELATIONS BETWEEN ALL CONSTRUCTS

		ILD	LCD	LLD	WA
ILD	Pearson Correlation	1	.881**	.803**	.717**
	Sig. (2-tailed)		.000	.000	.000
	N	54	54	54	54
LCD	Pearson Correlation	.881**	1	.946**	.866**
	Sig. (2-tailed)	.000		.000	.000
	N	54	54	54	54
LLD	Pearson Correlation	.803**	.946**	1	.878**
	Sig. (2-tailed)	.000	.000		.000
	N	54	54	54	54
WA	Pearson Correlation	.717**	.866**	.878**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	54	54	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

VI. DISCUSSION

A. Students' Perceptions of WhatsApp as Tool for ILD

It is noted that easiness in reaching the lecturer provided by WhatsApp is very important for the students consistent with literature [2], while the role of instructor in problem identification areas was not significant. The justification might be that teachers can help identify students' problematic areas face-to-face more effectively compared to online problem identification. WhatsApp also allows instructors to provide valuable feedback on students' assignments reaffirming finding of previous study [12]. It also allows the instructor to be supportive during students' discussion. Students also acknowledge that teacher can encourage their participation through WhatsApp [10]. It allows the instructor to respond students' queries. Instructors can provide students with links to videos or articles. It allows the instructor to continually model appropriate disclosure. It allows instructors to respond on time to students' questions and comments. Instructors can clarify unclear contents and points. Instructor can remind students of upcoming assignments to start work and organize anytime. However, overall, the mean value of the items is lower than literature [2]. The justification may be that WhatsApp as a learning tool for instructor-student interaction is underused.

B. Students' Perceptions of WhatsApp as Tool for LCD

It was found that academically engaging with lecturers' materials anytime anywhere is the main contribution of WhatsApp to LCD, which is consistent with the findings of previous studies [2], [32]. It was indicated that there was a technical problem as both on-campus and off-campus internet connections were unsatisfactory. Students have sufficient time to learn how to use the resources provided (self-paced learning). It allows sending graphics such as pictures and charts (it supports different formats). Students can get extra materials and homework out of class. Students have enough time to think about responses. Interaction with class content through WhatsApp helps students to increase their confidence level. It provides a space to discuss team-work and collaborative assignment. The discussion questions encourage students to share relevant experiences and examples. This app

supports exchanging information. There is opportunity to interact with the resources. Audio learning guides are sent to learners. It enables students to demonstrate mastery of course concepts. Interactive content causes direct and frequent performance. Students can get appropriate comments, pictures, or videos. It enables students to track work throughout project cycle. The course resources and materials shared on WhatsApp were helpful in completing course requirements and assignments. Students can appreciate free unlimited messaging. Students can actively engage with course materials that are secondary resources. Instructor can send personalized feedback on assignment [16]. However, although WhatsApp as a learning tool supports LCD, the average mean value is less than the findings of literature [2].

C. Students' perceptions of WhatsApp as tool for LLD

The findings show that the capability of WhatsApp for sharing knowledge is the best function of this app in LLD consistent with literature [2], while the least favored feature was allowing to be followed in path of conversation. Another dominant function of WhatsApp was enabling students to academically engage with peers anytime anywhere. WhatsApp group discussion allows students to interact with others [11]. WhatsApp offers a phone call for communication with other students. Course WhatsApp group provides communications with other students. Activities in WhatsApp group require that students cooperate and share result influencing students' learning life. Interaction through WhatsApp with other students helps increase self-confidence in doing class activity. Interaction with fellow students through WhatsApp is clear. Using WhatsApp supports students to discuss information with each other. It helps students to engage in ongoing social interactions. Students can practice the app skills together. Oversights reflection and discussion aid interaction among learners. However, while WhatsApp is a suitable tool for LLD, the overall mean value is less than the finding of past study [2].

D. Students' Perceptions of WhatsApp as tool for WA Dialogue

It was found that one of the most favorite features of WhatsApp is providing call for communication with other students, while students' responses, on WhatsApp in this study are less favored. Easiness in contacting instructor and academically engaging with lecturers' materials anytime anywhere were among preferred features of WA. The finding of the current study is regarding WA encouraging; however, it is still unsatisfactory.

E. The Relationship between ILD, LCD, LLD, and WA

The study finding indicated that the variables ILD, LCD, LLD, and WA all are strongly correlated; hence, an increase in one construct raises the value of another construct. Besides, increases in these variables lead to the WhatsApp use for communication and learning. The findings indicate that WhatsApp can be used as learning tool to support ILD, LCD, and LLD in learning subjects.

VII. CONCLUSION

The purpose of this study was to identify WhatsApp as a tool for ILD, LCD, LLD, and WA, and to find their relationships with WA. The present study adopted a survey approach using online questionnaire to collect data from students. The findings of the study indicate that students have positive attitudes towards WhatsApp as tool for enhancing instructor-content dialogue, ILD, LLD, and WA. It was also found that there was a strong relationship between instructor-content dialogue, ILD, LLD and WA.

The findings of the present study affirm the premise of constructionism and TDAs. WhatsApp platform allows students to learn new knowledge and information connected to their previous knowledge where WhatsApp as a tool has several affordances and benefits to the users. However, the current study has limitations that might be addressed in further studies. The sample of the study was small, so, a study involving more students could be of interest. This study adopted only a survey. It may be suggested that future studies utilized a mixed method approach to explore phenomenon more deeply.

VIII. IMPLICATION

The findings of the present study proved that most of students are in favorer of using WhatsApp as a tool for group dialogue in learning subjects. The findings of the study have implications for lecturers, policy makers and curriculum developers. The implication may be that instructors should adopt this approach for teaching and issuing out assignments [16]. WhatsApp as a learning tool has the capability to turn into educative and learning platform allowing students to increase their knowledge through discussion, interaction, sharing, and developing interpersonal skills.

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