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SOCIAL MEDIA USE, COLLABORATIVE LEARNING AND STUDENTS' ACADEMIC PERFORMANCE: A SYSTEMATIC LITERATURE REVIEW OF THEORETICAL MODELS

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ABSTRACT

This research provided a systematic literature review of theoretical models on interaction and collaborations regarding Information system (IS) and Information Technology (IT). This paper conducted an review of studies dedicated to (IS & IT) on the basis of certain dimensions namely, research theories, review of constructivist theories, definitions of constructivism, social constructivism, theoretical of constructivism, active collaborative learning theory, technology acceptance model (TAM), theory of reasoned action, technology acceptance model and Its extensions, and finally research models and frameworks. The discussion of this research obtained revealed that the interest on the topic has shown an increasing trend over recent years that it has ultimately become a well-known topic for academic research in the future via theories use. From review of theoretical models and related theories we recommend to use constructivism, active collaborative learning theory with (TAM) to measurement performance and satisfaction with social media use as the mediator. However, to boost and enhance the IT continuance intention, it is important that future studies apply considerable use of theoretical and methodological approaches like the qualitative methods to examine the IT continuance intention.

Keywords: *Social Media, Collaborative Learning, Students' Academic Performance, Theoretical Model*

1. INTRODUCTION

Social media has been used by research students at higher learning institutions, making it a very prominent means of communication, interaction, and dissemination. Consequently, academic activities in institutions and faculties are increasingly carried out through social media networks, such as Facebook, Blogs and YouTube. These social media are used for active collaborative learning and engagement to influence the learning performance. A pilot study of postgraduate students from Universiti Teknologi Malaysia (UTM) was carried out to obtain preliminary results of the current social media usage in the institution. In this research, we discussion of the contents of the proposed model for using social media for active collaborative learning to influence learning performance of research students in Malaysian higher learning institution is presented. The contents of the model include interaction with research group member or peers, interaction with supervisors or lecturers, engagement, perceived ease of use and perceived usefulness via active collaborative learning with social media use to affect satisfaction and learning performance of research students. The following sections describes the theoretical model, social constructivism, technology acceptance model (TAM) theory , research models and frameworks, discussion of

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related theories and models and finally conclusion and future work of this study are presented.

2. THEORETICAL MODEL

Social media as an information facility in institutions of learning provides a platform for efficient teaching and learning processes. However, to promote the proper use of social media in educational subsector, policies that guide and enable users should be implemented as suggested in existing literatures. Currently, the global information revolution is growing rapidly. Government and educational institution managers should be ready to provide secure online services to their youth especially those in institutions of higher education. However, as agreed by several previous researchers the promotion of the usage of social media to interested parties, education sub sectors must fully implement policies and guidelines to enable research students to incorporate social media into their daily teaching and learning processes as the medium has become an everyday occurrence in the life of an average youth. In view of this the author of this research proposes a full detailed model which indicates the influence of the use of social media on the learning performance of research students and how it influences learning performance of research students through active collaborative learning.

2.1 Research Theories

Students unable to find a cognitive balance and who have tried to become accustomed to obtaining equilibrium cognition and supported the learners to build the knowledge as the theory of social constructivist of [1,2] that see in social media network interactive and the perspective of allotment of knowledge and information or discuss with others. Thus this study use Constructivism [2] in support of the basic idea that learning is an active, constructive process. This study also uses Technology Acceptance Model (TAM) as introduced by [3]. This model focuses on investigating the factors that influence individuals' social media using a specific innovation or service [3]. Several studies found that perceived ease of use and perceived usefulness have a significant role in influencing satisfaction and individuals' intention in using a new technology [4, 5, 6, 7, 8, 9].

2.2 Review of Constructivism Theories

Constructivism is primarily a theory that is built on observation and scientific study concerning the way individuals acquire knowledge. It posits that individuals develop their own understanding and knowledge regarding the world they live in by experiencing things and thinking about their gathered experiences. A constructivist based learning method was demonstrated by [10] where individuals are consciously interacting with product construction [11]. In the context of education, the use of constructivism has been evidenced to boost higher order thinking skills like solving problems and critical thinking [11, 12].

In addition to the above, the view of constructivism within the classroom in learning is directed towards various teaching practices where generally it is referred to as motivating students to utilize active methods such as experiments, real-world problem solving, developing additional knowledge and thinking about what they are doing and to reflect the changes of their understanding. The teacher ensures that the pre-existing conceptions of the students are understood in order to guide the activity, address the conceptions and to develop them. Presently, constructivism has become one of the top influences on education practices in the past two and half decades. In fact, teachers have accepted constructivist based pedagogy wholeheartedly more often than other methods of school enhancement [13]. Many teachers focus on developing the meaning in the process of teaching and learning that is aligned to the prior beliefs as constructivist based teaching considers educational priorities as central to the learning of students. Furthermore, constructivist teachings motivate students to conduct ongoing assessment of the way the activities assist in their understanding.

2.3 Definitions of Constructivism

The term constructivism has been given different meanings based on individual's perspective and position. In the context of education, philosophical meanings are attributed to it; for instance [14] describes personal constructivism, [2] describes social constructivism describes radical constructivism, while [15] demonstrates constructivist epistemologies and educational constructivism. Among the types of constructivism described in the literature, social constructivism and educational constructivism theories of learning and pedagogy have had the most influence on instruction and design of curriculum as they appear to be suitable for current integration of educational methods. The following provides descriptions for constructivism in education.

First, [16] state that learners have to develop their knowledge in an individual and

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collective manner where each learner is provided a tool kit of concepts and skills upon which he/she can construct knowledge with an attempt to search for solutions to problems in the environment. In this regard, the community, teacher and other learners provide the setting, pose challenges and provide support that motivates the mathematical construction of the student. According to [17], constructivism is a theory about knowledge and learning rather than that of teaching and it defines knowledge as mediated temporarily, developmentally, socially and culturally and is therefore, non-objective.

Along a similar line of description, [18] posits that no matter how knowledge is defined, it remains in the heads of the individuals and that such individuals have no choice but to develop knowledge based on experience. Moreover, [18] agrees that constructivists posit that it is individuals who constitute or develop the unobservable items in theories based on experience. Meanwhile, [19] explain that the central principle of constructivist approach is that learners can understand new situations through their current understanding and that learning entails an active on-going process wherein learners develop meanings by relating new ideas with their current ones. In relation to the above descriptions, [20] states that constructivists of different persuasion are committed to the notion that the development of understanding calls for the learners' active engagement. The constructivists direct the concentration from knowledge as a product to a process that is interactive and collaborative.

3. SOCIAL CONSTRUCTIVISM

The foundation of social constructivism in the context of education was built on Vygotsky's work. He emphasized the role of others, or the social context, in learning and as a result, educators were urged to restudy the level to which learning is a process confined to the individual [2]. Also [2] contended that the path between objects and thought is mediated by other individuals via language signs and symbols [21]. Human history is built on man's increasing domination over nature via the invention of tools and the perfection of technology, and on the other hand, man gradually acquires self-control through invention of cultural sign methods [21]. Additionally, [2] over-emphasized culture and society by contending that all higher mental functions originate from society and are integrated in socio-cultural environment. [2] Explained that learning is best understood in relation to other individuals and this ongoing interaction between individuals and others is referred to as the zone of proximal development (ZPD). It is defined as the intellectual potential of the individual when assisted by a knowledgeable adult or a more knowledgeable child [2]. In other words, the individual is regulated in the learning process by a capable peer or by the teacher.

Furthermore, advocates of constructivism stress learner-centered education where students have the freedom to define and coordinate their process of learning with their peers. In this regard, [22] contended that constructivists stress the design of learning environments as opposed to instructional organization in the environment which should offer to the actual world a case based environment for acquisition of meaning and accurate knowledge. Hence, several active collaborative learning structures are developed based on the zone of proximal development (ZPD) proposed by Vygotsky.

3.1 Theoretical of Constructivism

The pedagogical model of constructivism, among the benefits of active collaborative learning, can pinpoint the experience gained by the learner when interacting with others. [2] cited in [23] demonstrated the importance of others as learning mediators as he believed that human mental activities are particular cases of social experience as shown in Figure 1. A certain amount can be learnt by a student learning on his own. In addition, their learning mentor provides scaffolding or support to help students and gradually withdraw this support so that the student becomes more independent. Peer tutoring, where students in the same group work with one another, has the advantage of increasing effectiveness and accuracy in relation to social skills. It also facilitates knowledge for all in a way that a teacher may not perceive. See Figure 1.

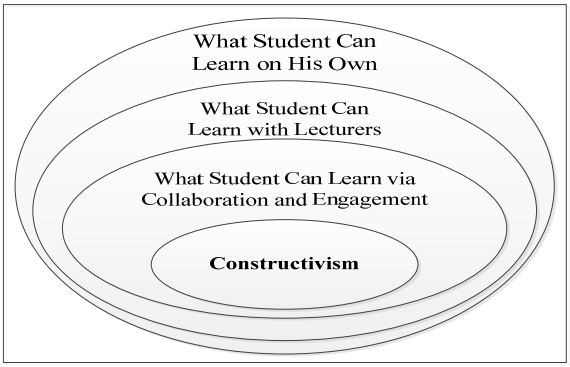

Figure 1: Zone of Proximal Development [2, 23]

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The social media to support active collaborative learning (SSCL) for enhancing of the students' knowledge construction and to find interaction between students with peers and students with teachers and additional experienced experts in the process. In the case of the learner who is unable to construct the knowledge, social media would be used. In addition, social media was able to enhance the cognitive and met cognition requirements [7, 9, 24, 87]. Communication interaction takes the form of discussion, chatting and sharing with other peers. SSCL is designed to show the role of knowledge construction, to support multiple opinion sharing and conceptual understanding of students. Social media used as a tool for communication among learners, instructors, experts company officers in the company can be divided into two types: synchronous and asynchronous. These tools are used to support multiple ideas sharing. As the learners share knowledge, there occurs a multiple representation [22]. Social constructivism emphasizes the social construction of reality [25]. Human relations and social interactions consist of thoughts and ideas and not necessarily of material conditions or forces. Social constructivism supports the researcher's social worldview that social institutions, such as the board of directors, are not realities that are independent from the observer, but exist only because people collectively think they exist [26]. Constructivism was chosen as the most suitable and beneficial learning theory and forms the basis of the theoretical learning paradigm of the shape shifting framework and compliments the philosophical orientation of social constructivism. Constructivism was developed in reaction to other approaches such as behaviorism and cognitivist. It states that learning is an active, contextualized process of constructing knowledge and skills rather than acquiring it through passive learning processes information social media was designed based on social constructivist theory as tools for promotion (Helps, 2006). Knowledge is constructed from the learner's previous knowledge, as well as personal experiences. Vygotsky's Social Development Theory is one of the major foundations of constructivism and is constructed around three themes [27]. The first theme is that of social interaction whereby social learning precedes development. The second theme involves the More Knowledgeable Other (MKO) that refers to anyone who has more knowledge, a better understanding or a higher ability with respect to particular concepts, processes or skills. The MKO is usually regarded as the facilitator to teacher, but can also be other learners. The last theme is comprised of the Zone of Proximal Development (ZPD) which is the distance between the learner's ability to perform a task under guidance of an MKO, and the learner's ability to solve the problem independently. Vygotsky's theories promote learning contexts in which the learner plays an active role in the learning process and learning becomes a reciprocal experience for both learner and teachers. The constructivist theory provides an alternative for improving educational proposals, possibly leading to enhanced outcomes in education than those obtained with traditional instructive models [28]. Moreover, [22] proposed a model for designing constructivist learning environments on the web, whereby problem is linked with cases, knowledge resources that support information construction, cognitive tools, and social support for implementation. According to [29, 30] Jonassen's model was reproduced and modified for designing constructivist environments to improve the active collaborative learning process. Based on Jonassen's model for developing an interactive platform to implement constructivist learning higher education is shown in Figure 2.

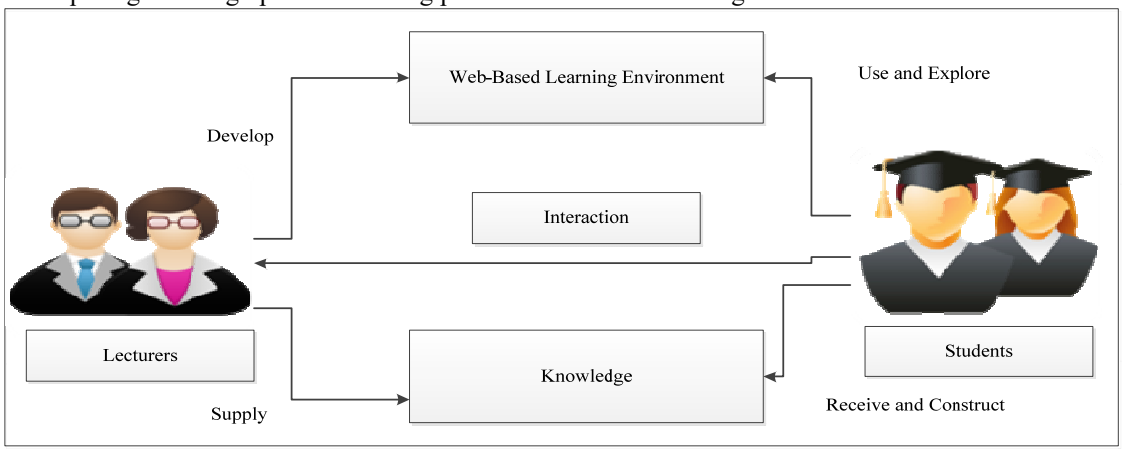

Figure 2: Constructivist Educational Model adapted [30, 31]

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The interactive that was developed has a constructivist approach, evaluating students' knowledge and showing activities and content adapted to the characteristics and learning styles of learners at universities. Furthermore, the platform facilitates the enhancement of knowledge of teachers and students and students with peers with permanent automatic feedback and support through instructional method and educational activities explored in a constructivist manner. Teachers or students have an important role not only in transmitting knowledge as most excellent researchers, but also to serve as facilitators in the learning process taking place between them. Social media also has the main task in supporting the knowledge construction enhancement of the students. The information and knowledge construction analyses and focuses on the role of teachers, students and experts relating to the use of social media for supporting knowledge construction [24]. In addition, use of social media for active collaborative learning and engagement has support through using theory of social constructivism by using of social media for knowledge sharing and exchange information with peers and supervisors. Thus, this research uses TAM and constructivism theories.

3.2 Active Collaborative Learning Theory

Cooperative learning takes place in groups, and it is where individuals work together to accomplish their shared learning goals [28]. The desired outcomes are seen as beneficial to the individuals themselves and also to their group members [32]. Cooperative learning is derived from three general theoretical perspectives: social interdependence, cognitive-development and behavioral learning theories. Active collaborative learning is comprised of five basic elements: positive interdependence, individual accountability, promotive interaction, interpersonal and small group skills, and group processing [33]. Positive interdependence is the most important element; it "exists when group members perceive that they are linked with each other in a way that one cannot succeed unless everyone succeeds. If one fails everyone fails" [28]. The fifth element is group processing, and this is where group members review their work as it relates to them achieving their goals and maintaining effective working relationships [32] Cooperative learning requires considerable planning from the teachers in order to make sure all of the five basic elements are in place [34]. Students in active collaborative learning groups differ from students in other learning groups because they perceive that they cannot achieve their learning goals if other group members are also unable to reach their goals; thus, the students are linked together [32].

According to [28], the size of cooperative learning groups normally ranges from 2 to 4 students; smaller groups are considered better. No ideal size for a cooperative learning group exists. Group size is dependent on several factors: how long the group be working together, students' ages and experiences with group work, and the material and equipment available [33].

4. TECHNOLOGY ACCEPTANCE MODEL (TAM) THEORY

Several researchers in the field of information systems have reported the under-utilization of IT in several organizations. As a consequence, many technology acceptance theories and models have been proposed and used to study such acceptance including the theory of Reasoned Action proposed by [35], the Technology Acceptance Model proposed by [3], and extended TAM proposed by [16], and the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by [36]. These also include the Motivational Model proposed by [16], the theory of planned behavior proposed by [37], the combined Model of TAM and theory of planned behavior proposed by [38], the Model of PC Utilization proposed by [39]. This study employs the Technology Acceptance Model (TAM) to examine social media use in active collaborative learning and engagement via social media use and students' satisfaction in the context of Malaysian higher education institutions. In the literature dedicated to information system (IS), the acceptance construct has been addressed with the help of perceived usefulness, relative advantage, learning performance and outcome expectancy in several IT acceptance models [36]. In particular, acceptance has been empirically confirmed as predictor of technology use by several researchers [36, 40].

4.1 Theory of Reasoned Action

The theoretical model of reasoned action (TRA) in the field of information system technology acceptance proposes that perceived usefulness and perceived ease of use describe the intention of the individual to use a system in this relationship; intention mediates the actual system use. Moreover, perceived usefulness is considered to be directly influenced by perceived ease of use. Both student and research groups have summarized

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TAM by deleting the attitude construct adopted from the TRA to suit the current situations [36]. See Figure 3.

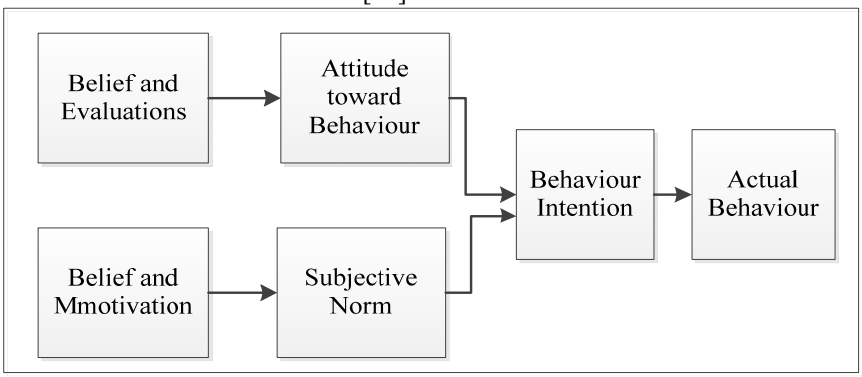

Figure 3: Theory of Reasoned Action [36]

4.2 Technology Acceptance Model and Its Extensions

Davis [3] developed TAM to determine that factors causing user's acceptance or rejection of information technology (see Figure 3.4). According to Davis, perceived usefulness and perceived ease of use are two most important individual beliefs governing the use of IT. Perceived usefulness refers to the level to which an individual is convinced that using a specific system would improve his performance of the job [3]. This definition has its basis on the expectancy value model that underlies the TRA. On the other hand, perceived ease of use is referred to as the level to which an individual is convinced that using a specific system would be effortless [16]. Both perceived usefulness and perceived ease of use results in individual's behavioral intention and actual behavior. Davis found that perceived usefulness is the top predictor of social media use in IT. See Figure 4.

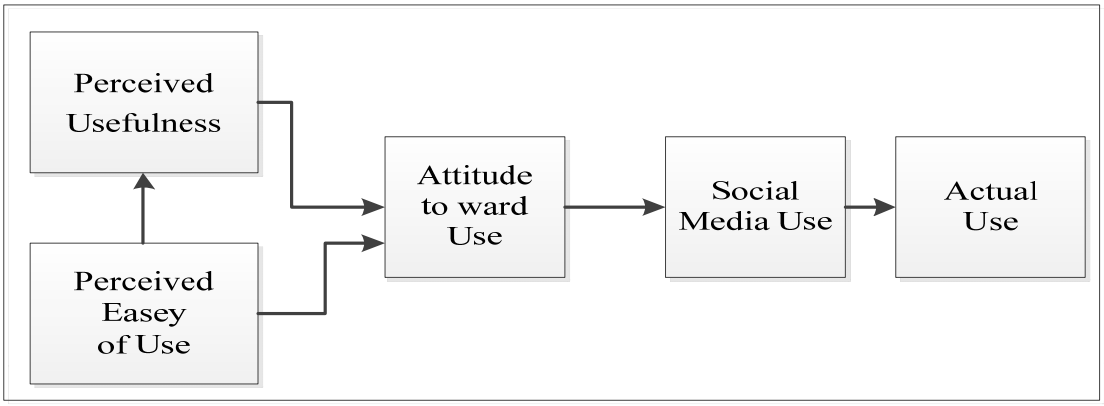

Figure 4: Technology Acceptance Model (TAM) [3]

The technology acceptance model has been extensively utilized in the information system field by researchers to examine the adoption of different technologies in such a way that it has currently become the most influential theory in the field. TAM has also been extended by researchers [41]. For example, some researchers included factors like satisfaction, subjective norm, perceived behavioral control and self-efficacy to TAM [38]. Other authors added belief factors from the diffusion of innovation literature and these include trial ability, visibility and result demonstrability [42]. Other authors included external variables or moderating variables to the perceived usefulness and perceived ease of use namely personality traits and demographic characteristics [43]. The various TAM extensions are depicted in Figure 5. The core positions of the two belief constructs namely perceived usefulness and perceived ease of use can clearly be seen. In the present study, the structure and primary assumptions of the models are kept the same as TAM in the context of examining social media for active collaborative learning via social media use and students' satisfaction. See Figure 5.

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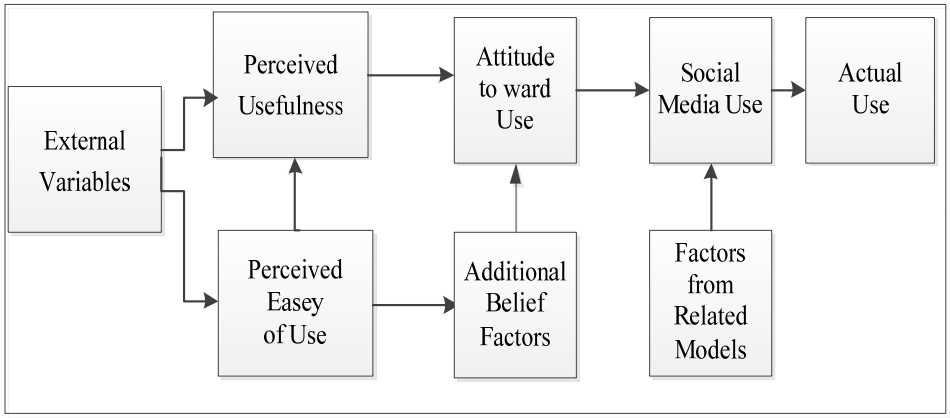

Figure 5: The Extensions to TAM - Adapted from [41]

5. RESEARCH MODELS AND FRAMEWORKS

This study attempts proposes a framework for the impact of social media use on collaborative learning among researchers at five research universities in Malaysian higher education, based on the constructivism theory (See Figures 6-9). From Figure.6, the model identifies instruments by which using social media for active collaborative learning and engagement influence learning performance of research students to use social media which in turn also affects the researchers' satisfaction. Meanwhile, social media increases the quality of interaction within the class both in terms of student interaction with peers and researchers and also teachers or supervisors [44]. Interaction created is a critical aspect in the training process. It encourages students to have active collaborative learning [45], and also creates a sustained behaviour participation in mastering activities in the engagement [46]. According to [47, 12, 9], students' learning performance was measured using the following three factors: interaction with peers (research group member), interaction with teacher or supervisors and engagement with active collaborative learning. In addition, [48] measured students' learning performance using active collaborative learning and student interaction. [49, 50], found factors of usefulness and ease of use, First, usefulness of social media is defined as the degree to which an individual believes that the use of social media would enhance his/her communication, collaboration and information exchange. Second, ease of use is defined as the degree to which an individual believes that using Facebook would be free of physical and mental effort. The above mentioned factors have an impact on active collaborative learning directly and also on the social media use. Positive attitude, perceived ease of use and perceived usefulness of use social media for active collaborative learning and engagement and the existence of these components are instrumental on active collaborative learning influence learning performance of research students [3]. See Figure 6.

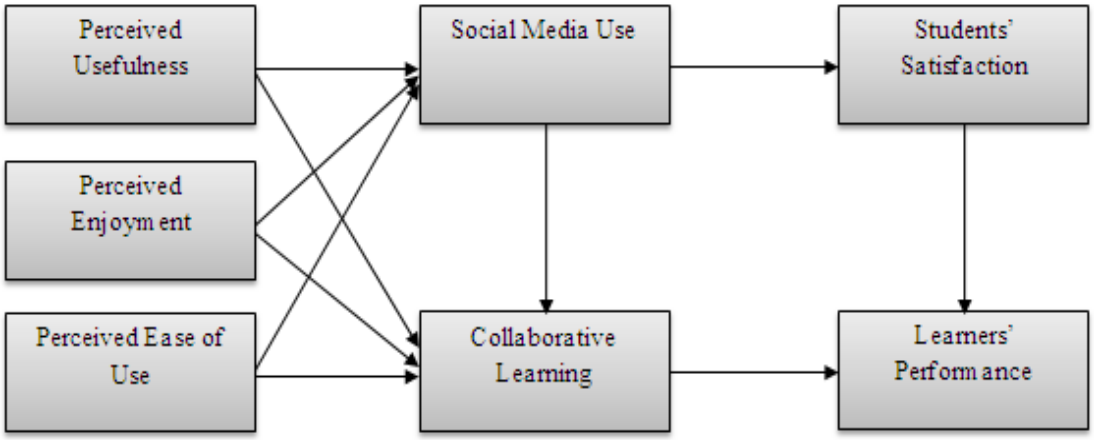

Figure 6: The research model with hypotheses [31]

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Furthermore, many studies have found a positive relationship among active collaborative learning and learning performance of research students [12, 47, 48, 24]. Similarly, many studies found relationship among active collaborative learning and engagement with students' learning performance and satisfaction [49, 40]. Likewise, some studies found relationship among usefulness and ease to use (TAM) with intention to use social media and relationship between use of social media to affect students' satisfaction and learning performance of research students [6, 7]. Traditional learning techniques can interrupt smooth interactions within the research group members [51]. Consequently, interaction influences student learning benefits [47]. Conceptually, although the idea of integration may be relevant, specific ways in which commuting students integrate can vary substantially from students who reside on campus, with socio-academic moments [52]. For those students, the conventional idea of interaction with peers and faculty held more appeal and purpose than did how often these interactions occurred and the depth of connection between researchers and supervisors. However, advanced technologies have transformed the way students interact with other students both in class and outside the class which consist of new choices to enhance interaction. Aiding interaction is important because it results in better and even more effective learning. Thus, it might be an essential way to obtain success in education [53]. See Figure 7.

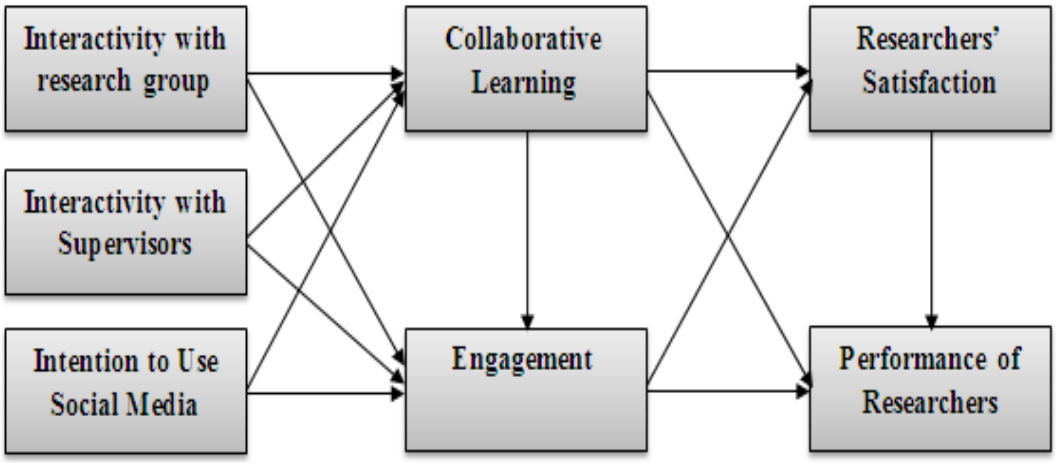

Figure 7: Conceptual framework and hypotheses [30]

The theory of student engagement took its origin from the educational practice that is proportional to the practice to improve student engagement. Engagement is seen today as the energy an individual student applies on educational activities which are empirically associated with preferred college final results [58]. Engagement includes various factors, such as the academic experience with college, interactions with faculty, participation in activities within the class, and interaction with peers in the search [54]. The social media network has been chosen as this type of online tool has been proven to have significant benefit on improved student learning performance and experience through cognitive engagement and social interaction [59]. Thus, active collaborative learning could then provide resources, increase engagement in the course content as well as provide a network of knowledge transfer [60]. The integration of Web 2.0 tools in secondary school classrooms for teaching maximizes the engagement of students with their learning content, assignments and accountability [61]. A significant number of studies have been conducted to determine whether students with opportunities to engage in wiki-based community learned better than students taught with traditional methods in lessons [62]. Most of these studies have documented a number of favorable effects on the use of wikis in the learning context including increased collaboration, peer interaction and motivation to learn. See Figure 8.

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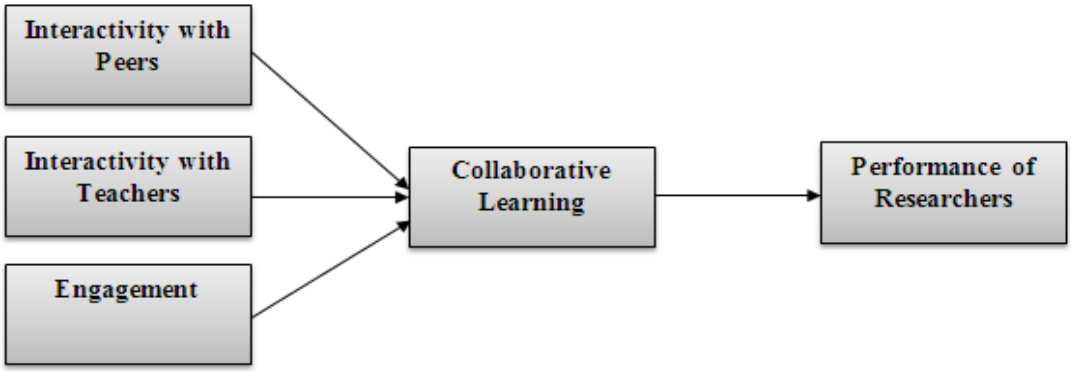

Figure 8: Conceptual framework and hypotheses [12]

Social media had been suggested by [54] as an ideal host for a blended learning environment as it was discovered to enhance peer relationships as students appreciated the interactive discussions that took place in the virtual learning platform. Social media network such as Facebook make very effective learning platforms that enhance students' engagement and learning experience, transforming them into active learners with an increased motivation to learn while fostering high quality exchange of ideas and knowledge among participants in a learning community [55, 30, 31]. Students need to increase their participation in their work assessment via productive interaction with their peers and teachers in order to create an integrated learning and teaching and in turn, develop active collaborative learning surroundings [56]. Social media has the capacity to support course management activities, enhance the provision of information and resources to students, as well as engage and motivate students through interactivity and collaboration [57]. See Figure 9.

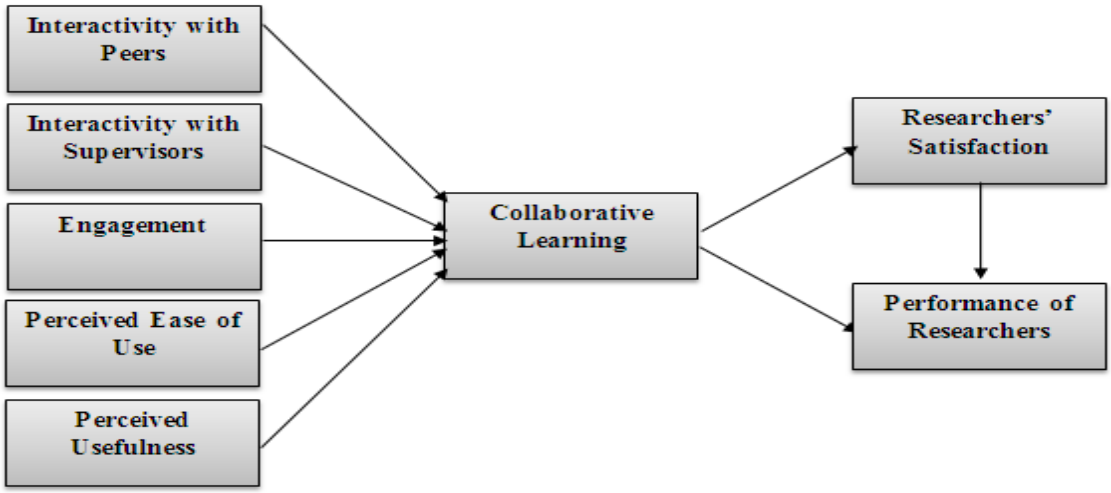

Figure 9: Conceptual framework and hypotheses [9]

Social media as a positive tool has been shown to enhance learning performance [6, 8, 9, 30, 31]. In addition, active collaborative learning using the social media such as Facebook, e-mail and Twitter facilitate learning and knowledge sharing among students, teachers or trainers to the context in real life situation and experiences. Furthermore, in deciding whether to use individual or active collaborative learning, the amount of cognitive load that a learning task imposes on the learner's cognitive capacity should be the main determining factor in the students' strong desire for active collaborative learning and learning with technology, and therefore their novelty effects may mislead us in thinking that the social media support of active collaborative learning (SSCL) outcomes are effective [24]. The significance of social constructivism in creating compositions related with active collaborative learning in writing classes was noted by [11] revealed that the majority of

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students perceived that their writing interest increased through active collaborative learning and that such learning via the use of wiki is related to positive learning perceptions [63]. Using social media especially Facebook as a medium of exchange creates a less threatening and flexible learning space which enhanced active collaborative learning, while building a stronger rapport among the students and their lecturer in a highly engaging manner [72]. The effects of a Web 2.0 based collaborative annotation system were investigated and it was found that the system could increase learning achievements in active collaborative learning environments. Therefore, researchers should track and analyze the interaction pattern that occurs during active collaborative learning [68]. Several studies explored the potential of Facebook as a learning resource that promotes collaborative and cooperative learning [54, 67]. [67] Developed Facebook pages for four university courses to analyze student's perceptions of Facebook as an interactive learning tool. Students in favour of using Facebook for academic purposes stated many reasons for the Facebook course page as an effective learning resource such as increased interaction and engagement in discussions of course topics or research, and exposure to relevant media and learning materials. However, some concern was raised about the need to keep updated with the Facebook course activity [67].

6. DISCUSSION OF RELATED THEORIES AND MODELS

In this research the social media use for active collaborative learning is the key factor in building technology utilization models [36, 3]. All these theories and models are extended from the basic principles of TRA which believes that the social media use is the function of attitude towards individual behaviour and subjective norms which was later extended to include perceived control and hence TPB [69]. In addition, perceived ease of use and perceived usefulness are considered as an important user's post-adoption belief that leads to increased levels of user satisfaction and continuance intention [70]. According to [71] the researcher found that individuals who enjoy social media use view their interactions with the system more positively and form a high behaviour social media use. Perceived usefulness is the user's belief in the usefulness of a piece of technology for achieving a certain goal. Specifically in a work environment where technology can be used to enhance performance, perceived usefulness may play a significant role in encouraging adoption of new systems. Perceived ease of use encourages social media use because individuals who perceive themselves capable of carrying out an action are more likely to do so [3]. The factors of perceived usefulness and ease of use has strong support in a wide variety of domains. [49] Conducted a meta-analysis of 88 studies testing the TAM. They found that these constructs were the most widely tested with strong overall reliabilities. Overall, perceived usefulness had a stronger association with social media use than did perceived ease of use, but both factors were strongly associated with social media use and active collaborative learning. For use of communication technology, perceived ease of use and perceived usefulness have also been supported in past research. A review of the TAM, [5] found that 20% of studies testing the TAM focused on communication technology. More specifically, among others, [16] found that perceptions of usefulness and ease of use increases with the social media use. The TAM approach is characterized with flexibility as it extends to include other variables that assist in explaining acceptance of technology [43, 64]. The relationship between perceived ease of use, perceived usefulness and social media use is justified by many studies in literature [3, 65]. Also, the relationship between perceived usefulness and social media use in the case of TAM is supported by statistical results by studies. The inclusive nature of the perceptions of both usefulness and ease of use and of the interactive aspects of the social media network in light of knowledge sharing and information exchange active collaborative learning and engagement may influence the satisfaction level of users [41]. However, social media tool acceptance depends on ease of use and usefulness in that both are required criteria to expand the use of the tool within a specific social media circle for active collaborative learning for positive outcomes. As for social communication behaviour online, a more positive attitude towards the use of online communication tools is aligned to higher behavioural intention to its use [66].

In research within the technology acceptance field, the influence of ease of use on attitude and intention is more often than not less significant compared to the effect of usefulness as usefulness mediates the effect of ease of use [41, 64] extend the contention and revealed that user satisfaction as well as social media use of technology is significantly impacted when focusing on the quality perception of the shared information and the quality of technology. This study

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investigated perceptions of usefulness of social media use and perceptions of ease of use towards active collaborative learning and engagement and suggests the following three factors.

Perceived ease of use is a term used to denote "the degree that indicates the user's need for the prospective system to become free from effort" [3, 43]. Therefore, students might depend on the social network provider not to abuse their information because of their personal gain [3]. Technology Acceptance Model (TAM) came from a theory of reasoned action, and could be regarded as a special situation due to two salient values: perceived simplicity of use and perceived effectiveness. The predictive energy of perceived simplicity of use and perceived effectiveness for users' technology acceptance continues to be empirically confirmed by many studies. In particular, users' perceived simplicity of use improves their perceived effectiveness and both constructs considerably improve users' intention to simply accept we've got the technology [50]. According to [43, 3], perceived effectiveness is the degree in which a person thinks as he uses a particular system to facilitate his performance. It further means that the social media is used in boosting pedagogical effectiveness within the research group member and class. Studies in the past have revealed that perceived effectiveness helps in utilization of using social media on active collaborative learning. In another finding, [73] posit that perceived effectiveness relates to how an individual thinks in the presence of an optimistic user performance. The consumer perceives the machine to become an ideal way of carrying out the duties [3, 50, 9]. It does appear that there is an enhanced trend among users to embrace the above mentioned social networking sites particularly at college level. It appears to possess transformed communication designs even at local level. [8, 30, 31] stated that social networking can offer new methods for individuals to interact within the research group member and class. The popularity of utilizing social networking among college students appears to increase on a daily basis and many of them depend on its usage for interaction and communication with supervisors. Researchers' satisfaction with active collaborative learning is definitely a result of the collaboration process and could be referred to mean the degree those students and researchers feel an optimistic connection to their own active collaborative learning encounters [6, 9, 30].

Nonetheless, country's profile and accessibility to the infrastructure play a vital role in the enhanced usage. Added to this, learner's satisfaction with active collaborative learning refers to the level to which a learner positively perceives his active collaborative learning experiences [74, 31, 8]. [9] found that social media enhanced learning experience by increasing student motivation and engagement, enhancing student-to-student and student-to-lecturer interaction and providing the students with skills most sought after in aiding their employability and increasing levels of satisfaction. To this end, active collaborative learning requires increased interactive capabilities to heighten the satisfaction of learners [75]. Also, [67, 30, 31, 9] stated that for the promotion of mutual interaction, systems of e-learning should have cognitive, behavioral and social components.

In the context of China, [77] revealed that Chinese students were not as comfortable with discussion about active collaborative learning as compared to their Western counterparts. According to the researchers, Chinese students also contribute less in online discussions indicating that some features of online collaboration, engagement, and students' satisfaction are perceived differently by students from different backgrounds and culture. Several elements in an active collaborative learning environment may influence students' satisfaction and engagement. The key elements are course characteristics, individual characteristics, various aspects of the active collaborative learning process, and satisfaction [74]. Moreover, there is limited research on the collaboration process within online courses, such as how participants engage, interact, negotiate, and work [54]. This shows that students prefer working with like-minded students, which thereby improves overall satisfaction with active collaborative learning when groups are homogeneous [6]. According to [78, 31] social media across fields of study has an impact on learning performance of its users. In fact, social group formation on Facebook has been found to facilitate student development [6, 9, 78]. However, there are some exceptional cases in which the findings show positive relationship between Facebook and Twitter [78, 79, 80] and integration to improve learning [30].

In a study conducted by [79], the researcher observed that students spend more time using social media for other purposes apart from educational use, thus affecting their learning performance. The research is further elaborated by [82] whereby the researchers stated that social media users had lower grade rankings than students who never engage in social interactions. However there are general benefits associated with users of

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social media. [9, 12] explained that social media are sources of intractivity, collaboration and communication among research students and lecturers in their respective faculties. Furthermore, [12] posited that social media had no effect on students' learning performance. Moreover, a study by [31, 82], attempted to study the relationship between Facebook and learning performance. The findings revealed that that there is a significant negative relationship between Facebook use and learning performance. Respondents reported spending fewer hours in a week studying on average compared to nonusers. Most respondents claimed to use Facebook accounts at least once a day. This is in line with findings of [78]. Studies dedicated to examining the effects of social media use on students' learning performance show that students found it suitable for their teachers to make use of Facebook, where both students and teachers can socialize [83]. Furthermore social media network use facilitates positive relationship between the learning performance of students and their satisfaction [9]. In the context of the educational arena, the social networking sites effectiveness is reported to enhance active collaborative learning outcomes. Specifically, [84, 30] recommend such learning approach by discussing its potential. Moreover, [9, 82, 88] report that networking in the educational realm has the potential to enhance the learning performance of students and that social networking enriches the learning environment. This can be done by highlighting students' needs and formative assessment through the creation of classroom community, facilitation of students' engagement, increased student achievement, information management and sharing of knowledge among students. However, this study is not without limitations. We should also highlight that the study was mostly quantitative, obtaining only small amounts of information on the qualitative use of social media by students, or their understanding of the items when answering them.

7. CONCLUSION AND FUTURE WORK

This research proposed a systematic literature review of theoretical models and frameworks which indicates the perception of students in regard to the use of social media and how it influences the learning performance of research students. It can be observed that the use of social media influences the learning performance of research students. The model describes the nine components of measuring social media use through active collaborative learning to affect learning performance of research students based on students' perceptions. This research found that social media was being used for active collaborative learning and engagement to affect learning performance of research students in Malaysian higher education this is consistent with [47, 50, 80, 85, 86]. Thus, we recommend using this theoretical model and framework for different fields such as e-learning, MOOCs, and all social network sites. This research shows the theoretical model and framework and variables observed on using social media for active collaborative learning and engagement, In this research the relevant interactive and perceptual factors include interaction with research group member or peers, interaction with supervisors or lecturers, active collaborative learning, engagement, perceived ease of use, perceived usefulness and social media use as the dependent variables that influence students' satisfaction and learning performance of research students. The active collaborative learning and engagement with social media use as the mediator is described.

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