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SMART TECHNOLOGY AND COLLABORATIVE PLATFORMS TO AID COMMUNICATION

SUNAYANA MANOJ[1], SHADI HIJAZI[2]

[1,2]Faculty - Al Ghurair University, United Arab Emirates

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ABSTRACT

The universal language of modern education is collaboration. Collaborative learning can be effective only when language flows fluidly enabling learners to realise constructive paradigms by forming lifelong relationships. Technology can assist students in realizing their full potential in a non-invasive way while promoting feelings of accomplishment. Students can produce language as a spontaneous reaction to transformational experiences. Situations that offer such innovative experiences can be extremely beneficial in promoting positive attitudes towards life and escalate feelings of self-worth within each individual team member. This small scale study concentrated on the role of smart technology in developing communication skills and interpersonal competence by incapacitating possible limitations. A qualitative method was used to gather data and the results of the study have been assimilated.

Key words: Smart Technology, Collaboration, Higher Education, Communication Skills, Interpersonal competence

Introduction

Technology may be the key to unlock the potential of students who are struggling to meet the expectations of their instructors or their respective colleges. It has been used time and again by educationists who are interested in assisting students to reach the pinnacle of success. Therefore, the role of technology cannot be underestimated as it can form the basis of learning.

Goldstein, Lawrence and Miner (2017) have insisted that humans armed with machines could be formidable. However, it is worth considering the benefits of interpersonal competence in a world that is dominated by technology. Educational technology combined with communication skills could also have a great deal of potential in developing life skills needed for the futuristic workplace. The research questions for this study focused on two pervasive questions.

a. Can meaningful conversations built around collaborative platforms overcome the communicative limitations of undergraduate learners?

b. Can exposure to interactive technological environments influence a team of students to develop self-confidence suited for workplace situations?

Hypothesis 1 focused on the premise that there could be a possibility of enhancing the communicative skills of undergraduates through collaborative platforms. An alternate hypothesis 2 disputed this premise. Hypothesis 3 states that it would be possible to develop self-confidence through an interactive technical ambience. Hypothesis 4 states that interactive environments that are technologically rich may not be capable of developing self-confidence within each team member.

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Rationale: Smart Technology is considered as a threat by certain humans but it can be considered as an opportunity to develop the dormant skills of undergraduate students. Some researchers have found it feasible to acknowledge that language is indispensable and can be used as a tool through every facet of life while being a means of transmitting messages.

Constructivist theories are not a new concept in the western world. However, students in the Middle East have a certain set of beliefs that group work is a waste of time. The current study was conducted to prove that technological tools can act as a catalyst for students in higher education, facilitate collaboration and assist them in developing conversational skills and self-esteem.

Literature Review

Researchers like Lave and Wenger (1991) have written about a *community of practice* which refers to a set of students sharing a passion to improve something through regular interaction. This mutual collaboration can result in constructive solutions. Joint engagement on specific issues can be beneficial in improving communication competence. It is certain that the capacity for language is diverse amongst humans.

In an early study Vygotsky (1978) has emphasized on the interaction between learners, providing theoretical perspectives as well as rationale to implement active interaction in academic settings. As a specialist in cognitive development, Vygotsky has made it very clear that effective learning takes place in student centric classrooms where peer interaction takes place.

According to Prince (2004), active learning is a method of instruction which enables students to be involved in meaningful tasks. These tasks can aid their learning process and encourage their thought process to grow and develop. Moreover, Alrashidi & Phan (2015) have stated that group work needs to be widely practiced in the Middle East just as it has been actively implemented in the western world. They have shown a lot of concern regarding teacher centric classrooms that could dominate the field of education in Saudi Arabia.

It is interesting to note that Lambirth (2016) has also shared his opinion regarding “dialogic space” which is being utilized in the field of education. Students need to have a certain space within universities where they can share various perspectives and foster new ideas. Knowledge can be constructed in the true sense with the validation of technological participation. However, communicative competence would be necessary to support dialogic discourse focused around technology. Meanwhile, Vardi (2012) highlights the fact that technology has been given a great deal of prominence by several researchers who have predicted that robotic intelligence will outperform and displace humans in a variety of decision making fields.

Furthermore, Swartout (2016) has put forth his views that a team comprising of a machine and man can outwit a person or a computer working alone . Apparently the philosophy behind this theory is that humans can be better decision makers if they have the power of technology and communicative power of expression to aid them.

Methodology

This study was conducted in a private educational organization which is accredited by the Ministry of Higher Education and Scientific Research in the United Arab Emirates and offers various specializations.

It must be noted that students from the Colleges of Engineering, Architecture/ Design, Business, Law, Media and Education are required to fulfill their general education requirements. Therefore, they were enrolled in various courses such as General Mathematics, Technical Writing, Communication Skills, Computer applications and Technology. Although most of these students were not a part of the current study, they were able to provide necessary support and benefitted through the interaction. It is of significant importance to

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note that students doing the above mentioned courses were encouraged to participate in an exhibition that involved artificial intelligence and robotics from the field of Science, Technology and Mathematics. Mr. Tahir, a specialist in Computer Applications and Technology took the initiative in co coordinating the event.

Participants from a General Education course entitled "Communication Skills" were targeted for this particular study. The study was conducted over a period of two semesters on groups of students enrolled on the above mentioned course. Participants from the experimental group were very enthusiastic about providing the necessary support to Engineering and Computing students. A qualitative method of study was followed along with a pretest and posttest to assimilate results.

It is imperative to note that the course syllabus was strictly followed during both the semesters. However, it must be acknowledged that students in the experimental group had a chance to undergo a team experience through active interaction. They were active participants in an STM Innovation and Robotics Exhibition.

Team work was the key feature of this exhibition as faculty from the College of Engineering and Computing played an active role in guiding students. As a result, undergraduate learners were able to construct highly mechanized robots and exhibit them with panache.

Although it was an exhibition on smart technology, the entire event was also quite competitive because the President, judges and viewing students could go around, meet the innovators and enquire about the functions of the various robotic models that were displayed in a large area within the university campus. Students and faculty who viewed the models had an opportunity to listen to the team representatives from the Colleges of Engineering / Computing/ Business/ Architecture and Design. These group representatives explained the various dimensions of the highly mechanized contraptions that they had practically put together through the usage of electronic circuits and other apparatus. Viewers were also given a chance to vote for the best invention. Winning teams were given awards based on the evaluation by qualified judges; student votes were also taken into consideration. The President of the University used this opportunity to give a speech that was very encouraging for the concerned students and faculty. Through an STM Innovation and Robotics exhibition on campus, students in the experimental group of the course "Communication Skills" were exposed to transformational technological situations and encouraged to ask plenty of questions. In addition, they were interviewed after the exhibition and asked to participate in a discussion.

Students from the experimental group were encouraged to carry out collaborative tasks within the classroom and participate in the exhibition. They had additional opportunities to carry out conversations in a technological atmosphere. However, towards the end of the semester, both the groups were asked to present on a topic of their choice.

Findings and Results

As a part of research ethics both the groups were informed that they would be part of a research study and told that they would be expected to be active participants.

It was considered feasible to conduct a pretest through a self-introductory oral presentation at the beginning of the semester. The results of the pretest were abysmal as shown below.

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Results of the Pre test

Respondents	Average scores on Presentation skills / 10	Allocated Time Span in minutes	Evaluation Percentage /100%
Control Group N= 22	3	3 mins	30%
Experimental Group N= 22	2.5	3 mins	25%

Results of the Post test

Respondents	Average scores on Presentation skills / 10	Allocated Time Span in minutes	Evaluation Percentage 100%
Control Group N= 22	7	5 mins	70%
Experimental Group N= 22	8.5	5 mins	85%

However, the results of the posttest reveal that there was a considerable improvement in the presentation skills of undergraduate learners. Some students who were extremely shy and self-conscious about conversing or presenting in front of a classroom audience at the beginning of the semester were very confident, loud, clear and could deliver their presentations fairly well at the end of the semester. They had picked up sufficient vocabulary through guided interactive tasks and a spontaneous flow of conversation.

As a post event activity, a random set of respondents from the course "Communication Skills" were asked to state their opinion regarding the exhibition. 80% of the interviewed respondents mentioned that the exhibition enhanced their communication skills. However, the researcher also noticed that the exhibition was successful in enhancing the organizational abilities of undergraduate students and fostered a sense of responsibility towards the community.

Almost all the students on the course had a chance to develop the art of conversing in polite and diplomatic language. Personal communication revealed that students found it very stimulating. It made them aware of the numerous possibilities that they could explore. Students who were interviewed mentioned that the event had made them aware of their own capabilities. Students who took up various responsibilities of planning the table arrangements, labelling the robotic models, hosting the event and presenting the awards had a great opportunity to enhance their team working skills. Moreover, these tasks gave them additional opportunities to improve their communication skills through constant interaction.

As a result, the self-confidence of these undergraduate students improved considerably and they were able to give better presentations using the target language at the end of the semester. So, Hypothesis 3 which suggested that it would be possible to develop self-confidence through an interactive technical ambience was proved to be a valid point. Negative hypothesis 2 and 4 were insignificant after analysis.

On the other hand, Hypothesis 1 on the possibility of enhancing communicative skills of undergraduates through collaborative platforms was proved to be accurate. The results of the posttest reveal that small scale exhibitions on campus can have a significant effect in enhancing the communicative competence of students.

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Discussion

As the study involved a large group of students who were divided into teams, students had an excellent opportunity to interact with students from other nationalities and contribute their ideas. They found it challenging to ask questions about working robotic models.

It is imperative to describe the robotic models which were a creation of bright young minds from the higher education sector. The water generator was a device that was meant to extract water from the atmosphere. Although the make shift contraption had used simple fibre containers with a number of tubes, it was considered as a very useful innovation. In times of war and natural disasters, it could be used to overcome problems related to shortage of water. The student representatives acknowledged that they had approached Engineering faculty Dr. Aruna for guidance and support. It was a fully functional model and appeared to be indispensable in times of water scarcity.

The periscope flow chart was another idea that stood as testimony for out of the box innovation. It could assist in making automobiles more stable in terms of structure through the effective usage of convex and concave glass technology. This innovation could actually assist automobile manufacturers to come up with intelligent vehicles that could predict, avoid and prevent accidents.

In addition, there was a large model of a robot that could blind enemy soldiers as it walked along dark areas. This would be particularly useful as a military strategy. Another model was a scorpion robotic model that could be used to carry arms and ammunition across large spans of desert sand. In addition, there were models of drones that could monitor roads and detect antisocial activities.

Moreover, there was another kind of robot that could anticipate one's needs whether it was a need for a rose or a weapon and could instantly fetch it. The controller would have to just program it and the job was done.

Furthermore, an augmented reality model was able to simulate the action done by a live person and reproduce the same action and audio sequence immediately transmitting it on screen.

It must be noted that students were able to produce so many of these varied models based on web research. Highly creative IT experts like Pranav Mistry have provided open source platforms for students to learn the art of creating innovative models. Web resources as well as books and electronic databases offered a wealth of ideas and students were able to harvest these ideas and adapt them to suit their needs.

Viewers comprising students were highly energized after the event. Undergraduates learnt how to work in teams and prepare a working model within the given deadline. Team work enhanced their ability to carry out purposeful action oriented research and discover new possibilities. However, the most beneficial aspect was the fact that it truly improved the English language skills of the respondents in terms of enhancing their communicative competence. Students were encouraged to converse with their team members using the target language and share their ideas. This in turn had a positive effect on their speaking patterns and helped them achieve conversational milestones.

Conclusion

Although all the teams did not qualify for the final event, it was a great team building experience for students from the Colleges of Law, Engineering and Computing, Business, Architecture and Design, Media and Education. Students could actually interact and improve their communicative competence. While the experience was invaluable for undergraduates from the Arabic Colleges, it was also useful for Engineering students as it helped them to develop their self-esteem. They had a chance to share their innovative robotic

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aspirations. It is interesting to note that this activity was successful in preparing undergraduates for actual workplace challenges. Therefore, such events should be a part of undergraduate studies and should be adopted by all research oriented technical colleges as well as universities. Active involvement by faculty from the Colleges of Engineering and Computing in guiding adult learners will result in the production of innovative, robotic models that can be used for the greater good of humanity. In addition, the experience of working in teams and conversing in English with students from multicultural backgrounds will assist students in promoting self-confidence while sharpening their communicative skills.

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