DREEM is Real: Dental Students Learning Environment in an Asian University

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Abstract

This study used the Dundee Ready Education Environment Measure (DREEM) inventory to assess the educational environment at the College of Dentistry in Lyceum of the Philippines University. Over 133 questionnaires were distributed and 97.7% of them were retrieved and analyzed using descriptive statistics under SPSS Version 17. The data revealed that most of the respondents were male and almost half of the respondents were first year students. They strongly agreed that they are provided with very conducive learning environment. While the college provides higher social support to male students as evidenced by their higher perception on social relationship compared to female, the learning environment, however, across all year levels has good qualities that are not confined to only one year level.

Keywords: DREEM, learning, assessment

Introduction

Student evaluation and assessment has become an integral process of any educational institution towards an improved and quality learning experience. Student views about their experience at any educational system, its programs, the component units of the program, and the entire learning environment are essential aspects for quality enhancement. Moreover, it provides evidence for the institution in assuring stakeholders that its aims for learning and teaching are being achieved and that it is engaged in continual enhancement.

The learning environment which is associated with many components is being evaluated by the students periodically. According to Bosque and Dore, as mentioned by Kamarudin et. al. (2009) conceptually speaking, the learning environment refers to the whole range of components and activities within which learning happens. As Sandberg defined, "Teacher component's role is to provide something between loose guidance and direct instruction. It can be a human agent (present or distant), an intelligent agent, and instructions

like some text books provide. This component provides information from the syllabus to the task level".

A motivating learning environment fosters deep self-directed learning in the student and subsequently good medical practice in the physician (Veerapen & McAleer, 2010). An ideal dental educational environment should enable students to acquire non-clinical, clinical and interpersonal competencies, which must be supported by integration among knowledge of biomedical, behavioral, and dental courses, by cognitive and psychomotor skills, and by professional and ethical values (Plasschaert, et. al. as mentioned by Silva, 2010). Similarly, the medical education learning environment is recognized as a key factor in the professional development of students. Creating a positive learning environment that promotes student acquisition of professional attributes necessary to provide quality care to patients continues to be a major challenge for undergraduate medical education according to Schochelak (2012). Therefore, discouraging factors such as inefficient teaching strategies, student partiality, lack of information, non conducive learning atmosphere and poor social interactions among teachers and students must be addressed and eliminated.

The faculty members of the College of Dentistry continuously seek to improve the quality of its instructional program to enhance student learning. The college evaluates through the students, the faculty performance and facilities provided by the university using the Customer Satisfaction Measurement (CSM) survey. However, this survey lacks the potential of addressing important issues related to dental education on the overall curricular experience and the entire learning environment. Marshall (2012) noted that due to the responsibility of academic advisers to assist students, each office should be evaluating its physical, aggregate, constructed, and organizational environments on a continual basis to stay current on students' environmental needs. It is evident that assessing and utilizing the study of environments would help to eliminate problematic constructions and improve student learning.

It is on this context that the researchers are motivated to embark on a study that would explore the assessment of the students on the learning environment. Moreover, this study would assist the university in identifying areas of concern.

Objectives of the Study

This study explored on students' assessment on the learning environment provided by the College of Dentistry in LPU-B. Specifically, this study (1) described the profile of the respondents according to gender and year level; (2) assessed the learning environment according to: teachers, learning, academic, atmosphere and social relationship.; (3) tested the significant differences in the respondents' assessment on the learning environment when they are grouped according to gender and year level; and (4) proposed plan to enhance student learning environment.

Review of Literature
Measuring learning environment using DREEM

Traditionally, dental curricula have been constructed so that students learn all current scientific and clinical content during dental school. Over time, with new discoveries and applications, students must work harder, faster, and longer if they do not want to neglect content deemed important by the faculty. Combine this situation with the reality that most students enter dental school as dependent learners, that is, dependent on the teacher to impart information while de-emphasizing the responsibility of the students to learn on their

own. Traditional pedagogy in dental education focuses on the ability of students to memorize facts. These conditions result in a learning environment characterized by an overcrowded curriculum that is unevenly contemporary, one that tends to stultify, constrain, and inhibit self-directed learning (Haden, 2006).

Therefore, measuring learning environment in identifying areas of concern from the dental students' perspective can provide dental educators with a road map that will help those responsible for curriculum revision.

The Dundee Ready Educational Environment Measure (DREEM) is a culturally non-specific, generic instrument that was developed to analyze undergraduate educational environments in the health professions. It has been found to be highly reliable in a variety of settings; with its help, institutions can identify shortcomings and formulate changes in curriculum (Kohli & Dhaliwal, 2013). DREEM is used in evaluation for diagnostic purposes, comparison between different groups and comparison with ideal/expected scores. It has been used internationally for different purposes and is regarded as a useful tool by users (Swift & Leinster, 2012).

As a proof, studies of educational environments have been conducted by researchers in medicine, nursing, and other disciplines in various countries using this instrument (Arzuman et. al., 2010). Moreover, Yussoff (2012) supports the view of Hammond, et al. that the DREEM inventory is a very useful tool for recognizing the educational climate at educational institutions and its widespread use verifies the need for such an instrument.

Perceptions on learning environment in dental education

Perceptions of the learning environment as a seldom-to-occasionally positive experience were maintained over the course of the entire dental education program, with a few minor exceptions. During an adjustment phase in the early months of their first year in the program, students reported increasingly favorable perceptions of the relationship between what they are learning and what they believe they require for professional practice. They also reported an increased awareness of the possibility of maintaining some outside interests despite the demands of dental school. Although these are positive developments, it is unclear whether they stem from positive early impressions of dental school or a sense of relief that it was not as difficult and all-consuming as initially expected. Given the overall modest ratings across the various subscales of the LES, the latter possibility seems more likely (Stewart, 2006).

In a SWOT Analysis reported by Henzi, et. al. (2007), with a total of 605 students (285 sophomores, 220 seniors, 100 residents) from twenty North American dental schools, students were asked to provide their impressions of the overall quality of the educational program in an open-ended written format. The data revealed that among the strengths were clinical learning experience, and opportunity to work with knowledgeable faculty. Meanwhile, the reported weaknesses include: disorganized and inefficient clinical learning environment, teaching and testing that focus on memorization, poor quality instruction characterized by curricular disorganization and inconsistency among instructors during student evaluations. Opportunities were the following: develop strategies to provide students with more exposure to patients, especially early in the curriculum, and opportunities to learn new technology/techniques. Finally, according to the respondents, the following are the reported threats: cost of dental education, students' concerns about faculty "brain drain," i.e., lack of sufficient numbers of dental faculty capable of providing high-quality instruction, and

questionable treatment of patients in the dental clinic as a consequence of pursuing procedural requirements.

Moreover, in the study conducted by Stewart (2006), beginning dental students reported increased perceptions of the meaningfulness of the material they were learning and reduced perceptions of the extent to which dental school would limit their outside activities. However, apart from this slight increase in positive perceptions during the first three months of their program, students tended to maintain a stable view of dental school as a seldom-to-occasionally positive learning environment.

Meanwhile, Shankar et. al. (2013) confirmed that teaching, being too teacher-centered and about student difficulties in coping with a demanding course of study would also be true for other schools. The issues of perceived problems in student support and counseling may also be true of other schools. In the Caribbean, many schools do not have residential facilities for students and faculty, which results in students' having to arrange their own accommodations and being scattered throughout the island, which may be partly responsible for the feeling of loneliness.

Therefore, improvement is required across all domains of the educational environment in every institution. Students, particularly of the eighth semester, perceived the teaching negatively. The lowest scores were given to the support system, burdensome course content, and factual learning; thus, a hybrid curriculum that includes problem-based learning might provide students with stimulating learning; structured clinical teaching with specific curricular objectives, as well as mentoring of senior students by faculty and near-peers, might improve the learning environment for senior students (Kohli & Dhaliwal, 2013).

Learning environment and academic success

The relationship between advisors and advisees should be optimized to fulfill the academic needs of students, which in turn increases their satisfaction with the academic advising process (Shamsdin & Doroudchi, 2012). The teacher involvement is very important determinant that is associated with the student academic performance (Kamaruddin, et. al., 2009). This may be due to the fact that teacher characteristics appear to be crucial for student perceptions of teaching quality. While more research into this issue is warranted, it may be hypothesized that empathic and enthusiastic teachers can improve student learning by increasing their motivation to learn (Schiekirka, et. al., 2012). Students are more ready to embrace learning and are less afraid to make mistakes when they feel valued and have a healthy self-esteem (Schlimpert & Reinisch, 2011).

In the study of Kamaruddin, et. al. (2009), results revealed that the key element that contributes to students' achievement is the organizational factors, the extra class and motivational programmes provided by the school. On the social factors, by having their own study table, own room and computer will be an added advantage to their achievement in school.

Eventually, a favorable educational environment will help medical students achieve better academic performance and the personal and professional growth that will make them indispensable assets to our country (Arzuman et. al., 2010). Study of Wayne et. al. (2013) provided some evidence for the widely held assumption that a positively perceived learning environment contributes to better academic performance.

Indeed, experts in the field of brain research are convinced that an individual's physical and emotional well-being is closely linked to the ability to think and to learn effectively. And the learner's surroundings greatly impact his or her ability to learn. A student's concentration

and motivation level can easily be influenced by physiological needs (Schlimpert & Reinisch, 2011).

Meanwhile, from the study of Lawrence and Vimala (2012), it is found that the school environment of standard IX students is low. It is found out that there is very low positive relationship between the school environment and academic achievement. To make the achievement to a high level, efforts must be taken to strengthen the school environment. So that, the environment boosts up not only the achievement of students but their social ability, healthy status and moral values also.

Methods

Research Design

This research utilized the descriptive survey method. The survey method was used to describe the perceptions on the learning environment among dental students in Lyceum of the Philippines University-Batangas.

Participants

The population for this study included all dentistry students in clinical phase officially enrolled during SY 2013-2014, with a total of 133 respondents with the following distribution:

Course/Year	No. of students
DDM1	55
DDM2	31
DDM3	29
DDM4	18
TOTAL	133

Instrument

This study adopted the Dundee Ready Education Environment Measure (DREEM) which was used by Veerapen and Mcaleer (2010) in assessing the perception of the students on their learning environment in a distributed medical programme. The DREEM is a 50-item validated inventory with five subscales. The survey is answered on a 4-point Likert scale (strongly disagree, disagree, agree and strongly agree). The five subscales are students' perceptions of learning, students' perceptions of teachers, students' academic self-perceptions, students' perceptions of the atmosphere and students' social self-perceptions.

The term perception was used in the survey as it has been observed and validated by various studies. However, in the present survey, the term "perception" will be accounted to students' assessment on each learning environment subscale.

Procedures

The instrument used in the study was a standardized survey which had been designed to be used across cultures and institutions and was validated and tested in a wide range of settings. Prior to distribution of the instrument, an orientation was conducted among the respondents regarding the nature of the study. Students were informed of the strict confidentiality treatment of data and ensured to protect the anonymity of them in providing the data. All aspects of the project underwent reviews and approval by the College Research Committee and the refereeing process instituted by the University Research and Statistics Center. Upon the approval of the review committee and the President, the researchers distributed the instrument to the respondents and retrieved them for tallying, encoding and interpreting of the data.

Statistical treatment of the study

Statistical analysis was carried out in SPSS version 17. The frequency distribution and percentage of responses were calculated for all items in the profile variables of the respondents. The analysis of the students' perception of individual items was based on mean scores and the frequency distribution of responses. Responses were recorded on a four- point Likert scale. Meanwhile, Analysis of Variance (ANOVA) was used to determine the significant difference on the assessed learning environment when grouped according to profile.

	Weighted Range	Verbal Interpretation	Holistic Interpretation
4	3.50-4.00	Strongly Agree	Very Conducive
3	2.50-3.49	Agree	Conducive
2	1.50-2.49	Disagree	Less Conducive
1	1.00-1.49	Strongly Disagree	Not Conducive

Results and Discussion

Table 1
Profile of the Dentistry Students (n=130)

Profile	Frequency	Percent
Gender		
Male	33	25.4
Female	97	74.6
Total	130	100.0
Year Level		
1st Year	55	42.3

2nd Year	31	23.8
3rd Year	28	21.5
4th Year	16	12.3
Total	130	100.0

The overall distribution of gender and year level is shown in table 1. The respondents have been classified into two groups, the gender and the year level. The data show that around three-fourths (97 or 74.6%) were female; while 33 or 25.4 percent of the respondents were male.

Over the past 30 years, the proportion of women attending medical schools has steadily risen in many countries including the UK, US, Canada, and Australia.1 2 In 2003, all UK medical schools had more female students than male, with the percentage of women exceeding 65 percent. This partly reflects the increasing number of women applying for medical courses (McKinstry, 2008). The percentage of women in dentistry will rise significantly from less than 20 percent now to around 40 percent (or more) in 2015 as the male dominant "Silent Generation" and older cohort of the "Baby Boom" generations of dentists retire (Carlisle, 2004).

With regard to year level, the data show that as year accumulates, the number of respondents decreases. First year respondents dominated the survey with 55 or 42.3 percent while second year posted a 31 or 23.8 percent. About 28 or 21.6 percent were third year respondents. Meanwhile, fourth year respondents were only 16 or 12.3 percent.

A significant drop of enrollment is expected for incoming second year students after being exposed to rigorous introductory classes and pre-clinical labs and experiences. As Kortklin (2012) mentioned, like any other course, some students attained self-realization to discontinue with the program knowing that they would not survive eventually. On the other hand, a significant drop of enrolment was also noted for incoming fourth year DDM students due to financial issues and failure to comply with requirements and some satisfactory procedures prior to enrolling the final year.

Table 2
Students' Perception of Teachers

Teachers	WM	VI	Rank
1. The teachers are good at providing feedback students	3.68	Strongly Agree	5
2. The teachers have good communication skills with patients	3.73	Strongly Agree	3
3. The teachers are knowledgeable	3.76	Strongly Agree	1
4. The teachers give clear examples	3.74	Strongly Agree	2
5. The teachers are well prepared for their classes	3.72	Strongly Agree	4
6. The teachers provide constructive criticism here	3.68	Strongly Agree	6
7. The teachers (do not) ridicule the students	3.66	Strongly Agree	7
8. The teachers (do not) get angry in class	3.55	Strongly Agree	11
9. The teachers are (not) authoritarian	3.61	Strongly Agree	9
10. The teachers are patient with patients	3.62	Strongly Agree	8
11. The students (do not) irritate the teachers	3.60	Strongly Agree	10
Composite Mean	**3.67**	**Strongly Agree**	

Table 2 presents the assessment of respondents on the teachers. Respondents opined that teachers are knowledgeable (3.76), that they give examples (3.74) and have good communication skills with patients (3.73). Meanwhile, although strongly agree, respondents perceived least agreement on teachers being not authoritarian (3.61), that students do not irritate the teachers (3.60), therefore teachers do not get angry in class (3.55). However, the respondents strongly agreed that teachers are contributory in attaining a very conducive learning environment in the university.

The relationship between advisors and advisees should be optimized to fulfill the academic needs of students, which in turn increases their satisfaction with the academic advising process (Shamsdin & Doroudchi, 2012). The teacher involvement is very important determinant that is associated with the student academic performance (Kamaruddin, et. al., 2009). This may be due to the fact that teacher characteristics appear to be crucial for student perceptions of teaching quality (Schiekirka, et. al., 2012).

Table 3
Students' Perception of Learning

Learning	WM	VI	Rank
1. I am encouraged to participate in class	3.66	Strongly Agree	7.5
2. The teaching is sufficiently concerned to develop my self-confidence	3.67	Strongly Agree	5
3. The teaching encourages me to be an active learner	3.67	Strongly Agree	5
4. The teaching is well focused	3.66	Strongly Agree	7.5
5. The teaching is sufficiently concerned to develop my competence	3.73	Strongly Agree	1
6. I am clear about the learning objectives of the course	3.65	Strongly Agree	9
7. The teaching is often stimulating	3.70	Strongly Agree	2
8. The teaching time is put to good use	3.69	Strongly Agree	3
9. The teaching is student centered	3.64	Strongly Agree	10.5
10. Long-term learning is emphasized over short-term	3.67	Strongly Agree	5
11. The teaching is not too teacher centered	3.64	Strongly Agree	10.5
12. The teaching does not over-emphasized factual learning	3.62	Strongly Agree	12
Composite Mean	**3.66**	**Strongly Agree**	

Table 3 presents the assessment of respondents on the learning provided by the college. Respondents believed that teaching is sufficiently concerned in developing their competencies (3.73), that teaching is often stimulating (3.70) and teaching is put to good use (3.69). On the other hand, they least agreed that teaching is student centered (3.64), that teaching is not too teacher centered and teaching does not over-emphasized factual learning (3.62). However, the respondents strongly claimed that their learning experience is contributory in attaining a very conducive learning environment in the university.

Learning, which according to the respondents are more on teacher-centered, provides students the opportunity to develop their competencies using stimulating techniques and strategies used by the teachers. According to Stewart (2006), during an adjustment phase in the early months of their first year in the program, students reported increasingly favorable

perceptions of the relationship between what they are learning and what they believe they require for professional practice. Therefore, Henzi et. al (2007) proposed that providing a knowledgeable faculty with clinical learning experience becomes a necessity.

Table 4
Students' Academic Self-perception

Academics	WM	VI	Rank
1. Much of what I have to learn seems relevant to a career in medicine	3.75	Strongly Agree	1
2. I feel I am being well prepared for my profession	3.69	Strongly Agree	4
3. Last year's work has been a good preparation for this year's work	3.72	Strongly Agree	2
4. My problem solving skills are being developed here	3.68	Strongly Agree	5
5. I am confident about passing this year	3.64	Strongly Agree	7
6. I have learned a lot about empathy in my profession	3.66	Strongly Agree	6
7. Learning strategies that worked for me before continue to work for me now	3.70	Strongly Agree	3
Composite Mean	**3.69**	**Strongly Agree**	

With regard to students' academic self-perception on table 4, respondents perceived the highest agreement that they will learn skills and competencies relevant to their career (3.75). Moreover, they believed that last year's work has been a good preparation for this year's work. However, they least agreed that they have learned a lot about empathy in their profession (3.66) and being confident to pass the curriculum in the current year (3.64). Respondents, on the other hand, considered academic as factor in attaining a very conducive learning environment.

With the integration of outcomes-based education curriculum, the learning outcomes are anchored on the program educational objectives. Alignment of student outcomes is crucial in ensuring that expected skills and competencies are being developed among the students. While more research into this issue is warranted, it may be hypothesized that empathic and enthusiastic teachers can improve student learning by increasing their motivation to learn (Schiekirka, et. al., 2012) and pass the curriculum.

Table 5

Students' Perception of the Atmosphere

Atmosphere	WM	VI	Rank
1. The atmosphere is relaxed during lectures	3.64	Strongly Agree	5
2. I feel able to ask the questions I want	3.64	Strongly Agree	5
3. I feel comfortable in class socially	3.68	Strongly Agree	1.5

4. There are opportunities for me to develop interpersonal skills	3.68	Strongly Agree	1.5
5. The atmosphere is relaxed during seminars/tutorials	3.63	Strongly Agree	7
6. The enjoyment outweighs the stress of studying medicine	3.60	Strongly Agree	8
7. The atmosphere motivates me as a learner	3.60	Strongly Agree	8
8. I am able to concentrate well	3.64	Strongly Agree	5
9. The atmosphere is relaxed during clinical teaching	3.66	Strongly Agree	3
10. The school is well time tabled	3.57	Strongly Agree	10.5
11. I (do not)find the experience disappointing	3.57	Strongly Agree	10.5
12. Cheating is (not) a problem in this school	3.55	Strongly Agree	12
Composite Mean	**3.62**	**Strongly Agree**	

The total weighted mean of 3.62 implies that students considered the learning atmosphere in the university as contributory to a very conducive learning environment. They feel comfortably in class socially (3.68) and they believe that there are opportunities for them to develop interpersonal skills (3.68). Similarly, they strongly agreed that the university gives relaxed atmosphere during clinical teaching. On the other hand, they least agreed the fact that they do not find the learning experience disappointing (3.57), the school is well time-tabled (3.57) and cheating is not a problem of the school (3.55).

The present study claimed the opposite to the study of Lawrence and Vimala (2012) which found that the school environment of standard IX students is low. To make the achievement to a high level, efforts must be taken to strengthen the school environment. So that, the environment boosts up not only the achievement of students but their social ability, healthy status and moral values also. For instance, the implementation of academic integrity policy as written in the Student Manual of LPU-B is a crucial step by the management in maintaining the academic transparency and integrity among students and academic staff. The program was anchored on maintaining the fairness, honesty and self-respect among all stakeholders in the university.

Table 6
Students' Social Self-perceptions

Social	WM	VI	Rank
1. I have good friends in this school	3.78	Strongly Agree	1
2. There is a good support system for students who get stressed	3.69	Strongly Agree	2
3. I am (not) too tired to enjoy this course	3.58	Strongly Agree	5
4. I am rarely bored on this course	3.55	Strongly Agree	7
5. My accommodation is pleasant	3.59	Strongly Agree	4
6. My social life is good	3.65	Strongly Agree	3
7. I seldom feel lonely	3.56	Strongly Agree	6
Composite Mean	**3.63**	**Strongly Agree**	

Table 6 presents the students' social self-perceptions. The data shows that respondents have strongly agreed on the items regarding their perceptions on social aspects of learning environment. They strongly agreed that they have good friend in the university

(3.78) and there is a good support system for students who get stressed (3.69). However, they least agreed on the fact that they seldom feel lonely (3.56) and they rarely feel bored on the course (3.55). Despite these findings, respondents still viewed the social support from the college as contributory to a very conducive learning environment.

This result confirms the study of Barrion (2011) who proposed the intervention program to enhance stress management. According to the study, although LPU-B paramedical students' level of stress was slightly stressful, the students occasionally managed stress in their daily living by talking with family, friends and supportive faculty members which made them relaxed and comforted. Mentoring and coaching are highly evident as a form of classroom and organizational support to the students.

Table 7
Differences of the Students' Perception on Learning Environment when Grouped According to Gender

Learning Environment	Male	Female	t-value	p-value	Interpretation	Decision
Teacher	3.78	3.63	1.933	.058	NS	Accept
Learning	3.75	3.63	1.406	.165	NS	Accept
Academic	3.70	3.69	.128	.899	NS	Accept
Atmosphere	3.72	3.59	1.513	.136	NS	Accept
Social	3.77	3.58	2.350	.022	S	Reject

There are no significant differences on the perception of male and female on learning environment in terms of teacher, learning, academic and atmosphere as denoted by the p-values which are all greater than 0.05 level of significance. Therefore, the null hypothesis of no significant difference on these variables is accepted. However, there is a significant difference between male and female respondents in terms of social relationship as indicated by the computed p-value of 0.022 which is less than the 0.05 level of significance. This implies that the male respondents have significantly higher perception of social relationship compared to their female counterpart.

Since, paramedical courses tend to become stressful (Barrion, 2011), and females tend to show better coping strategies when compared to males (Tam, 2008), the university provides higher social support to them to survive with the program. Thus, males have higher perception of social relationship compared to their counterpart.

Table 8
Differences of the Students' Perception on Learning Environment when they were Grouped According to Year Level

	F	p-value	Interpretation	Decision
Teacher	.824	.483	NS	Accept

Learning	1.181	.320	NS	Accept
Academic	.503	.681	NS	Accept
Atmosphere	.226	.878	NS	Accept
Social	1.163	.327	NS	Accept

There is no significant difference on Learning Environment as perceived by the students when they were grouped according to year level as denoted by the computed p-values which are all greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. This implies that the learning environment across all year levels have good qualities that are not confined to only one year level.

A favorable educational environment will help medical students achieve better academic performance and the personal and professional growth that will make them indispensable assets to our country (Arzuman et. al., 2010). Study of Wayne et. al. (2013) provided some evidence for the widely held assumption that a positively perceived learning environment contributes to better academic performance.

Proposed Action Plan

With the generated results, the action plan is hereby recommended focused on five areas of concern including teachers, learning, academics, atmosphere and social with the aim of proposing programs and strategies to enhance each as contributing factor in the learning environment. The action plan is proposed to enhance the research productivity of the faculty members with appropriate utilization.

Conclusions

Based from the generated results and findings, the following conclusions were drawn:
1. The data revealed that the population of Dentistry students in LPU-B is dominated by females with more first year as respondents than other year levels.
2. The respondents strongly agreed that they are provided with very conducive learning environment as shown by their assessment on the teachers, learning, academic, atmosphere and social support.
3. The college provides higher social support to male students as evidenced by their higher perception of social relationship compared to female. However, the learning environment across all year levels has good qualities that are not confined to only one year level.
4. The proposed action plan is therefore devised for utilization and evaluation.

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