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The Mismatch Between Perceived and Preferred Expectations of Undergraduate Paramedic Students

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ABSTRACT

Background: Clinical education placements provide the opportunity for students to gain practical skills and apply theoretical knowledge not otherwise available in many instances. **Objectives:** This research explored how undergraduate paramedic students perceive their clinical placement learning environments. **Methods:** A prospective cross-sectional study using a paper-based survey, the *Clinical Learning Environment Inventory* (CLEI), was conducted on undergraduate paramedic students studying at a large Australian university in semester 1, 2010. A total of 190 students were invited to participate in the survey. The CLEI is a standardised tool that contains 84-items and six subscales. **Findings:** Sixty students completed the CLEI (31% response rate). It was found that on both the "actual" and "preferred" CLEI forms, *Satisfaction* was found to be the most important domain having a mean score of 29.68 (SD+3.81) and 31.37 (SD+4.35) respectively. *Individualisation* was found to be the least important domain in both the "actual" and "preferred" form, with mean scores of 20.93 (SD+3.80) and 24.03 (SD+3.82) respectively. This indicated that paramedic students as a group sensed that the *Satisfaction* aspect of clinical placements are an integral aspect of their preferred clinical learning environment. Results also indicated that all six subscales were statistically different at the $p<0.001$ level. **Conclusion:** There were significant differences in the perceptions of paramedic students "actual" and "preferred" clinical learning environments. This provides educators with strategies in promoting positive learning experiences for students.

INTRODUCTION

University students enrolled in paramedic programs in Australia attend academic classes at the university and also complete a number of clinical placements. In both these settings, there is a range of learning opportunities for students. Education in a traditional classroom environment is a somewhat different experience for students than the real life context of practical education during clinical placements. It is widely accepted that clinical placements are a vital part of the education of undergraduate paramedic students and is often a professional requirement for course accreditation by professional bodies.¹⁻³ In practice-based professions such as paramedicine, practical "hands on" experience is a large and highly sought after part of the curriculum. However, currently, there is a critical shortage of clinical education placements and opportunities for paramedic students to gain "hands on" work thus highlighting the importance of investigating such areas.⁴

External factors such as staff shortages, rising training costs, variability of case load at each individual ambulance branch, budget cutbacks, and increasing competition for placement positions due to the expanding number of education institutions offering paramedic programs have all contributed to a noticeable decrease in clinical practice opportunities.⁵⁻¹¹ For example, within Victoria, Australia, the number of paramedic programs has increased from three to five in less than two years. "Each year, a consortium request goes out to all registered service providers (emergency medical service providers) asking them to state what placements they can offer. Six monthly requests have also been trialled because service providers may not be able to anticipate available staffing and capacity potential in advance. While the consortium system has yielded some placements, the universities report that less than half their placement needs are met by this approach."¹² This highlights the fact that despite the preparations for clinical placements of paramedic students, still less than half of placement needs are being met. Another contributing factor is that within most states, there is only one provider of clinical placements -- the state run ambulance service.

Without an adequate number of available clinical placements, there will be further shortages of qualified paramedics to fill available positions in ambulance services in Australia. Despite the advocated importance of clinical placements in the development of clinically competent health care practitioners and the claimed transferability of skills learning in an academic setting to clinical practice contexts, there has been minimal empirical research investigating how health students view these divergent learning environments, with no research being focused on paramedic students.^{3,13,14} Therefore, the purpose of this study was to investigate the perception Bachelor of Emergency Health (BEH) students from one Australian university have of their clinical learning environments.

LITERATURE REVIEW

The clinical learning environment has been described as a complex social context of interactive forces within a practice setting that influences students' clinical and professional learning outcomes while being closely monitored by a qualified practitioner-educator.^{14,15} Unlike the classroom setting where learning is highly structured, students on placement are often exposed to unplanned learning experiences and activities where they engage directly with patients and other health care disciplines.^{15,16} In other words, when clinical education takes place, there is a variety of formal and informal learning opportunities and potential challenges that may present to students and educators.¹⁴ The important fact for all key stakeholders to consider is that both the clinical and classroom learning environments are vital components of any undergraduate healthcare program, and that we need to be aware of how the two different contexts complement and/or contradict one another. Dunn and Hansford recommended "collaboration between the higher education and health care centres is essential if the clinical learning environment is to best meet the needs of undergraduate nursing students."¹⁷ This point is reinforced by Papp et al, stating that strong co-operation between university educators and clinical educators are paramount in creating a productive and beneficial clinical learning environment for students.¹⁸

Papp et al hypothesised that the learning environment was broken into two distinct sectors: the clinical and the academic.¹⁸ The clinical learning environment is described as a high and varying stimulus environment, but is low in information, while the academic environment contains a high level of varying information, but is low in terms of stimuli. Several studies have been completed that highlight the importance of the clinical learning environment. Kilminster and Jolly found that the clinical learning environment affects what is learnt, how the students respond to clinical situations, and how they respond to what is being taught to them.³ The clinical learning environment also provides students with the opportunity to observe different role models, practice in action, and reflect upon what is seen, heard, and performed within the clinical practice setting.¹⁴ Dunn and Hansford suggest that the clinical learning environment can have a profound impact on the development of the attitudes, knowledge, psychomotor abilities, and problem solving skills of students who venture into these contexts.¹⁷ Jarski et al suggests that clinical educators should take on the greater role of not only teaching clinical skills but also facilitating a learning environment where students are able to integrate theoretical learning with patient care.¹⁹

At the time of this writing, there has been limited research completed that investigates the clinical placement learning environment of students enrolled in paramedic or allied health care programs from the students' perspective.¹⁴ In a qualitative study by Hart and Rotem, six factors were identified that described the clinical learning environment and allowed for students' learning experiences to be categorised.² The six factors identified were autonomy and recognition, role clarity, job satisfaction, quality of supervision, peer support, and opportunities for learning.² This is similar to the four elements identified by Papp et al that summarised the clinical experience of student nurses undertaking clinical placement: appreciation, support, quality of mentoring and patient care, and self-directedness.¹⁸

PURPOSE

The purpose of this study was to explore how paramedic students at one Australian university perceived their clinical placement learning environments. It aimed to determine students' "actual" and "preferred" perceptions of their clinical learning environments

and assess the differences between these two perspectives. In doing so, it identifies key characteristics of paramedic students' preferred clinical learning environments.

METHOD

Design

A prospective, cross-sectional survey design using a standardised self-report scale was implemented.

Participants

Participants included all students enrolled in the Bachelor of Emergency Health (BEH) at Monash University in 2010 who also had completed at least one clinical placement. Convenience sampling was used to recruit participants. Inclusion criteria for student participants were i) being enrolled at Monash University in the BEH program, ii) able to provide consent to take part in the study, and iii) having a working knowledge of the English language.

Instrumentation

The *Clinical Learning Environment Inventory* (CLEI)^{16,23-25} was used to assess paramedic students' perceptions of their clinical learning environments. In 2001, Chan developed the *Clinical Learning Environment Inventory* (CLEI) in order to measure the learning during nursing students' placements.¹⁵ Chan developed the CLEI following an in-depth literature search that showed that there was no instrument that underpinned investigation of the classroom environment in its original form or could adequately access the learning feature of the clinical learning environment. The CLEI was designed to assess the students' perceptions of the psychosocial characteristics of the clinical learning environment where students interact and coexist with other students, clients, other clinicians, clinical placement supervisors, and clinicians from other health care disciplines. As part of the development of the CLEI, Chan incorporated a modified version of *The College and University Classroom Environment Inventory* (CUCEI), as well as the dimension characteristic proposed by Moos and Trickett.^{20,21} Chan also based the development of this CLEI on the person-environment fit framework formulated by Fraser and Fisher.²² An important feature of the CLEI, and one which has been a recent edition to recently developed classroom environment instruments, is that it incorporates two distinct forms: one that measures students' perceptions of the "actual" environment, while the other measures the environment ideally liked or "preferred" by students.^{14,15}

The CLEI used in this research contains 84 items assessing each of the six subscales: *Personalization*, *Student Involvement*, *Task Orientation*, *Innovation*, *Individualization*, and *Satisfaction*. As suggested by Chan, the sixth subscale, *Satisfaction*, was designed to be used as an outcome measure.²⁴ This scale assesses the student's level of satisfaction arising from their clinical placement, and therefore allows for an assessment of the relationship between student outcomes and their clinical learning environment. Each subscale has seven items and is scored using a 5-point Likert rating scale, with a maximum obtainable score of 35 for each subscale. This is explained by Chan.^{15,16,23} Table 1 contains a definition of each dimension that individual subscales measure.

Table 1. Description of the Clinical Learning Environment Inventory subscales¹⁵

Scale Name	Scale Description
Personalisation	Emphasis on opportunities for individual student to interact with clinical teacher/clinician and on concern for student's personal welfare.
Student Involvement	Extents to which students participate actively and attentively in hospital ward activities.
Task Orientation	Extents to which ward activities are clear and well organized.
Innovation	Extents to which clinical teacher/clinician plans new, interesting and productive ward experiences, teaching techniques, learning activities and patient allocation.
Individualisation	Extents to which students are allowed to make decisions and are treated differentially according to ability or interest.
Satisfaction	Extents of enjoyment of clinical field placement.

Each CLEI item is rated on a four-point Likert-type scale (4=Strongly Agree to 1= Strongly Disagree). A person-environment interaction framework was used when developing the CLEI. Therefore, it consists of two versions - the "actual" and "preferred" forms. The "actual" form is used to measure students' perceptions of the actual clinical environment, while the "preferred" form is concerned with goals and value orientation and hence was designed to measure students' perceptions of an "ideal or preferred" clinical environment. Both forms are similar in terms of item wording; however, instructions for answering them are different.

In an Australian study conducted by Chan, internal consistency was determined using Cronbach's alpha reliability coefficients. These values ranged from 0.73 and 0.84 for the "actual" form and 0.66 to 0.80 for the "preferred" form.²⁵ Discriminant validity was also assessed and ranged between 0.39 and 0.45 for the "actual" form and 0.23 and 0.42 for the "preferred" form.²⁵ Discriminant validity measured the mean correlation of one subscale with the other subscales, and the results indicated that although some of the subscales did overlap, the CLEI measured distinct aspects of the clinical learning environment.

Data Entry, Management, and Analysis

The Statistical Package for the Social Sciences Version 18.0 (SPSS) was used for data entry, storage, and retrieval.²⁶ The student participant responses to the CLEI were tabulated and descriptive statistics such as measures of central tendency (e.g. mean) and measures of variance (e.g. standard deviation) were calculated. Independent t-tests were used to test differences in outcome measures. Results were considered statistically significant if the *p* value was < 0.05.

Procedures

Ethics approval for the study was obtained from the Monash University Standing Committee on Ethics in Research Involving Humans. Students received an explanatory statement detailing the study and were informed that all data collected would be de-identified and analysed on a group basis only. Participants' consent to take part in the study was inferred by the completion of the questionnaire. Participants were asked to complete a paper-based, self-report questionnaire which was comprised of questions regarding the students' demographics and the two versions of the CLEI. Questionnaires were distributed to students following completion of clinical placements. Students took approximately 15 minutes to complete the questionnaire. A non-teaching member of staff facilitated the process and collected the completed questionnaire.

RESULTS

Participant demographics

A total of 60 paramedic students took part in the study (31% response rate), with 44 participants (73.3%) being female. Demographic data relating to the participants are presented in Table 2. Most of the participants were either younger than 20 years (43.3%) or aged 20 to 24 years (45%). The majority of respondents were enrolled in their 2nd year of their course (63.3%), and were enrolled on a full-time basis (96.7%). All of the students who participated in this study had completed and had obtained their VCE certificate (Victorian Certificate of Education), with 40% of participants entering university directly from high school, and nearly half of the participants (43.3%) having completed some form of prior tertiary education.

Table 2. Demographic information of participants (n=60)

Variable	Descriptor	N	Percentage (%)
Gender	Male	16	26.7
	Female	44	73.3
Age	15-19 years	26	43.3
	20-24 years	27	45
	25-29 years	5	8.3
	30-34 years	1	1.7
	35-39 years	1	1.7
Ethnicity	Caucasian	56	93.3
	Asian	4	6.7
Prior tertiary education	Yes	26	43.3
	No	34	56.7
Directly from high school	Yes	24	40
	No	36	60
Year of enrolment	1st year	38	63.3
	2nd year	22	36.7
Location	Inner city	9	15
	Outer city	38	63.3
	Semi-rural	4	6.7
	Rural	4	6.7
	Other	5	8.3

Differences Between Paramedic Students' "Actual" and "Perceived" CLEI Scores

The mean score and standard deviations for each subscale were calculated to enable comparison of the student paramedics' perceptions between "actual" and "preferred" learning environments. In reference to Table 3, on both the "actual" and "preferred" form, *Satisfaction* was found to be the most important domain having a mean score of 29.68 (SD+3.81) and 31.37 (SD+4.35) respectively. *Individualisation* was found to be the least important domain in both the "actual" and "preferred" form, with mean scores of 20.93 (SD+3.80) and 24.03 (SD+3.82).

Table 3. Differences between the Actual and Preferred versions of CLEI

CLEI Subscale	Mean (SD)		Mean difference (SD+)		p-value
	Actual (SD+)	Preferred (SD+)	Mean Difference	t-value	
Personalisation	26.58 (4.52)	28.43 (5.10)	1.85 (0.92)	-2.869	<0.006
Student Involvement	24.65 (3.18)	26.85 (4.83)	2.20 (1.10)	-3.811	<0.000
Task Orientation	25.72 (3.10)	28.80 (4.25)	3.08 (1.54)	-5.607	<0.000
Innovation	22.25 (4.04)	25.63 (4.64)	3.38 (1.69)	-5.116	<0.000
Individualisation	20.93 (3.80)	24.03 (3.82)	3.10 (1.54)	-4.412	<0.000
Satisfaction	29.68 (3.81)	31.37 (4.35)	1.69 (0.90)	-2.745	<0.008

The overall mean scores for each of the CLEI subscales on the "preferred" form were notably higher than on the "actual" form. The difference in "preferred" and "actual" subscales means ranged from 1.69 to 3.38 (see Table 3). All six subscales (actual, preferred) were significantly different at $p < 0.05$.

DISCUSSION

This study explored the perceptions of undergraduate paramedic students regarding their unique clinical learning environment. It was revealed that there were some significant differences in the perceptions of paramedic students "actual" and "preferred" clinical learning environments. These findings provide the discipline with important baseline data in its attempt to deal with clinical placement learning and curricula alignment and renewal challenges. The provision of clinical education is an essential aspect of the paramedicine curriculum. The benefits of clinical education are critical in preparing the novice student learner to become an entry-level health care provider. As a result of this, it is critical that both the academic teacher and the clinical placement instructor have an understanding of the expectations and perceptions of students, and how these differ from the current clinical education opportunities they are currently receiving. It is important for educators to identify what students' perceptions are and what they believe the clinical learning environment can and should provide.²⁷

Differences Between Students' Perceptions of "Preferred" and "Actual" Learning Environments

One of the key findings in this study was significant differences between undergraduate paramedic student's perceptions of their "preferred" and "actual" clinical learning environments. The results obtained strongly suggest that paramedic students commonly preferred a more positive clinical learning environment than what they actually perceived to be present, or have experienced, in the past. These findings are consistent with earlier research.^{14-16,28} It is noted that if educators attempted to alter clinical learning environments to make them more aligned with the preferred clinical learning environments of students, then better outcomes could be achieved by paramedic students undertaking educational placements.¹⁶ However, it should be noted that while the paramedic students would prefer their clinical learning environment to be more favourable, this does not necessarily equate to paramedic students receiving better educational opportunities. This would require further investigation.

To further explore this concept, the study revealed that on the CLEI, both the "actual" and "preferred" form, *Satisfaction* was the most important domain reported by undergraduate paramedic students. This indicated that paramedic students as a group

sensed that the satisfaction aspect of clinical placement work is good, and is an integral aspect of their preferred clinical learning environment. *Satisfaction* in the CLEI context refers to the extent of enjoyment of clinical field placements and the feeling of actually achieving advancements in their clinical practice.¹⁴

In the “actual” CLEI, *Personalisation* also scored highly with the undergraduate students. *Personalisation* refers to emphasis placed on opportunities for individual students to interact with, and form relationships with, the clinical teacher/clinician and concern for student's personal welfare, particularly after critical incidents, whilst completing clinical placements. This supports the findings of previous studies, that health care students place high emphasis on *Personalisation*.^{14,15} Intriguingly, in the “preferred” clinical learning environment, there was a high emphasis placed on *Task Orientation* by students. *Task Orientation* refers to the extent to which clinical activities are clear and well organised, which is a surprise for undergraduate paramedic students, as often the clinical field work placements provide a widely varying case load that lacks structure.²⁹ This may be an indication from undergraduate paramedic students that there needs to be a highly structured supplement to clinical placements such as simulation or hospital placement where the environment is more structured.³⁰

At the opposite end of the scale for both the “actual” and “preferred” CLEI, *Individualisation* scored the lowest. *Individualisation* refers to the extent to which students are allowed to make decisions and are treated differently according to ability or interest. This was a surprising finding, as both paramedicine and health care in general tend to place emphasis on the physical ability of students to perform their roles in health sciences.²⁹

The practical implication of the study findings is clearly evident through the marked difference in undergraduate paramedic students' perception of the “actual” and their “preferred” clinical learning environment. From the results that were obtained in this study, it was evident that paramedic students were expecting more than what they were receiving in the context of clinical learning. Although anecdotally, paramedic students find it valuable and appreciate the experience of clinical placements, meaning they can seek to gather priceless clinical knowledge and skills, though Boyle et al suggests that this may not be accurate.²⁹ As professional educators, we should be taking in these results and altering our teaching to the needs of paramedic students, ensuring that they not only experience the clinical learning opportunities that they desire, but that they also stand to benefit greatly from them.

Lindahl, Dagborn, and Nillson examined student-centered clinical education and highlighted the significance and importance of reflective practice.³¹ This raises the question of the importance of reflective practice throughout the clinical placement process. Moreover, in a study by Lindahl et al, the authors noted that better learning through reflection can be achieved by creating a student-educator learning plan at the commencement of clinical placements.³¹ The key concept is that there will be agreed goals and objectives set between the educator and student that will need to be completed during the clinical placement, although this raises some logistical issues for some students due to industry rostering arrangements.

Limitations

There were several limitations associated with this study. Firstly, it was conducted at only one university in Australia and only focused on undergraduate paramedic students, thereby reducing the generalisability of the study findings. There was also a very low response rate, and it would be impossible to know whether non-responders had different opinions. It would be a worthwhile prospect for complementary studies to be conducted around Australia and potentially internationally. Secondly, given the fact that this was a self-reporting questionnaire, there is potential that students have answered the items in a socially desirable way. Thirdly, the questionnaire was given to a range of different year levels that each possessed their own individual amount of clinical experience and knowledge, resulting in different perspectives of clinical placements. Fourthly, participants were recruited through the use of convenience sampling. This could have resulted in the student sample being an inaccurate representation of the wider student body. Finally, no qualitative information was gathered. The utilisation of interviews and focus groups could complement the results obtained in this study and could be used to further explore the needs and expectation of students.

CONCLUSION

The benefits of clinical education are well known and there is little doubt that they form an integral part of undergraduate paramedic education. As a result of the limited time and clinical placement resources available, a strategic plan is required to ensure students receive a range of clinical education opportunities. This will enable students to refine their technical and non-technical skills. Continual and ongoing communication and reflection between students, educators, and clinical placement educators should continue. In the future, further research should explore students' perspectives of their clinical learning environments and experiences so that we can optimise their opportunities for learning.

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KEY TERMS

Paramedic, Undergraduate, Clinical Education, Clinical Placements