Emotional Intelligence development in Diagnostic Radiography and Radiation Therapy students: an international, longitudinal study

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Abstract

Emotional intelligence (EI) has been identified as an important trait for healthcare professionals and healthcare students. This study aims to map the EI development of Diagnostic Radiography (DR) and Radiation Therapy (RT) students together with related activities through the curriculum that have potential to increase EI. First year DR and RT students from three universities in Hong Kong, Ireland and the UK were invited to participate in an online trait EI questionnaire (TEIQue-SF). Statistically analysis was performed and preliminary results with 230 participants show there are differences between EI scores of Irish and UK students and their Hong Kong peers. There are differences between the EI profiles of the 1st year DR and RT students and qualified DR and RT practitioners with staff scoring higher on overall Global EI and two sub measures.

Background

This project represents the beginning of an international, longitudinal study that benchmarks the emotional intelligence (EI) scores of Diagnostic Radiography (DR) and Radiation Therapy (RT) students as they progress through their degree qualifications and into clinical practice in four different countries. The impact of key EI related curriculum activities upon the students EI development will be determined by this study. Key EI activities will be identified during the research and include entities such as the amount and timing of professional placement time, communication skills training, reflective practice, stress management activities, mentoring and leadership activities.

EI can be conceptualised in different ways and there are several different definitions available within the ability model, trait model and mixed model (Bar-On, 2006; Mayer, Caruso & Salovey, 1999; Petrides & Furham, 2000). EI is especially important for healthcare workers with research evident in the fields of medicine (Arora et al., 2010) nursing (Bulmer Smith, Profetto-McGrath & Cummings, 2009), midwifery (Patterson & Begley, 2011) and DR and RT (Mackay et al., 2012). This is due to the nature of the work which is often highly emotive, personal and takes place in the complex context of health and illness service provisions. The link between EI and undergraduate student education is supported through a small number of studies that have attempted to show the correlation between undertaking EI related educational activities and improved EI scores. A study in engineering degree
programmes (Nizaroynai, 2012) showed no change in EI scores from enrolment to completion, however, MBA students showed significant differences in EQ-i competencies for a similar period (Joyner & Mann, 2011). Additionally, the influence of the early years of higher education is unknown and this study aims to investigate EI development in degree programs that have professional clinical placement embedded into the first two years of the curricula.

DR and RT are two separate health care professions that share a common educational bond of medical physics and some imaging instrumentation like CT scanners. Both DR and RT are taught at degree levels (undergraduate and Graduate Entry Master) in the 4 countries involved in this international study and this is a common pattern elsewhere worldwide. Diagnostic Radiographers are usually registered or accredited practitioners who employ a range of medical imaging equipment (from plain radiography/x-rays through to complex imaging systems in CT, MRI and vascular imaging modalities) to image patients.

Radiation Therapists are usually registered or accredited practitioners who plan and deliver radiation as a therapy primarily to treat cancers. They work closely with patients and radiation oncologists to ensure treatment fields are accurately planned and operate high-energy radiation equipment to administer the prescribed radiation dose. In most cases, RTs work with cancer patients who are receiving treatment for a radial (cure) or palliative outcome and often form a strong bond with their patients through the regular daily contact and treatment which is common for RT.

In terms of curricula, it is common for DR and RT students to share preparatory communication, patient care and ethics education. Branching into discrete patient models and cases happens as DR and RT students progress through the degree. The timing, amount and patient interactions may also differ for these two student groups as may their experiences of attending professional clinical placements.

**Objectives of the study**

This study is a benchmarking and subsequent longitudinal study of the EI profiles and development of DR and RT students throughout the four international DR and RT degree programs offered by the University of Liverpool (UOL), University College Dublin (UCD), The Hong Kong Polytechnic University (HKPU) and the University of Sydney (USYD).

Specific objectives include:

1. To benchmark the EI development of DR and RT students in the first year of their higher education degree
2. To map the EI development of DR and RT students during their education, professional placement and entry into professional practice
3. To explore the impact of program delivery (international perspective), type of program and professional impression through placement upon DR and RT students EI scores
4. To categorise current key EI related educational activities present within the DR and RT curricula of the four universities involved in the study
5. To demonstrate the impact of the key EI related educational activities identified above on students’ EI levels.
The following hypotheses will be made:

a. Students’ global and factor EI scores will increase by the end of a semester which contains EI development activities
b. There will be a difference in the EI scores between the Graduate Entry Masters (GEM) and undergraduate programmes with the older GEM students scoring higher
c. There will be no difference in EI scores between the DR and RT students
d. There will be a difference in the EI scores between students from different countries
e. Female students will score higher than male students for the Emotionality factor

The Independent variables will include:

- Educational activity as documented in the curricula
- Participant age and gender
- Program type as either being undergraduate (BSc, BA) or GEM
- The enrolled degree professional pathway - DR or RT
- The culture of the student cohort as represented by the country of program delivery – Australia, Hong Kong, Republic of Ireland and England

Methods

Study Design and Instrument

A time-series design will be used with EI measurements being taken at the start and end of semester 1, at the end of semester 2, and 6 months after successful completion of the degree program. EI related educational activities within each programme will be identified and classified and the semester and year in which they occur through the program will be recorded. Students’ EI scores as a cohort will be mapped to the EI curricula to assess the impact of each activity.

The short form of the trait EI questionnaire will be used throughout the study (Petrides, 2009). This will be administered online to participating students and will take approximately 5-10 minutes to complete. Statistical analysis will be via MANOVA with post-hoc Tukey test and independent T-Tests with bonferroni correlation.

Sampling

Students were invited to participate via an email to their university email account. The email contained details of the project and the web-link to the online questionnaire. By voluntarily accessing and then completing the questionnaire students confirmed that they consented to participating in the study. All measurement started at the beginning of the students’ first semester enrolment onto their programs – September for the northern hemisphere 1st semester of the UOL, UCD and HKPU. USYD students began their participation in March 2013 in line with the southern hemisphere university enrolment. Therefore even though the start dates are not co-incident, the relative times of EI measurement will be comparable as the start and end of each semesterEthical approval was granted from each institution according to the local requirements of each country.
Dependent Variable

| EI score          | Global, WB, SC, EM, So |

Independent Variable

| Time              | Time series with 8 data points |
| Country           | Liverpool, HK, Sydney, UCD |
| Programme type    | Undergraduate & GEM |
| Professional degree | Diagnostic radiography, radiation therapy |
| Summative Assessment score | Clinical assessment scores at the end of each year |

Table of Variables

Preliminary Results

Within the first round of recruitment 230 1st year DR and RT students participated from UOL (n=73), UCD (n=34) and HKPU (n=123) with a response rate of 72%. The sample comprised of 118 (51.3%) females and 112 (48.7%) males with a mean age of 19.40 yrs (SD=3.71, range 17, 50). Hong Kong students scored significantly lower in terms of global EI (mean=4.75) than students in Ireland (mean=5.01) and the UK (mean=5.05) (F (2, 210) = 4.97, p=0.008. Statistically significant differences emerged for the well-being factor (F= (2, 221) = 4.84, p=0.001) and sociability (F (2, 217) = 6.76, p=0.02).

Student EI scores from the UK and Ireland groups were compared (n=101, 83% response rate) to published norm data and differences were found between the UK/Ireland student group and the norm data for qualified UK radiographers on overall Global EI (p≤0.01) and factors of Well Being and Self-control (both p≤0.01). In all cases the mean score for qualified staff was higher than the 1st year students who participated.

Discussion and Conclusions

Preliminary finding suggest that there are differences between the EI profiles of 1st year higher education DR and RT students and qualified DR and RT staff with staff scoring higher on Global EI and two of the four factors comprising the EI measures. This was an expected outcome to the study as it is anticipated that students develop generic and healthcare specific graduate attributes as they progress through their education. The amount of EI related activities was mapped to be relatively small in the first semester of the 3 universities’ curricula and changes in EI are expected as students progress through their second semester of study and experience professional placements first hand.
Initial findings also demonstrated differences between students from Hong Kong and both Ireland and the UK in terms of their EI profiles for global EI, well-being and sociability. One suggestion for this finding may be that Asian university students tend to show greater humility in their self-estimations of overall, verbal and cultural intelligence compared to American and British students.

Questions for Discussion:

1. How can EI be integrated into the curriculum to create ethical practitioners?
2. Can EI be effectively measured via the Petrides model and what do students believe we are measuring?
3. Can the quantity of clinical experience affect students EI progression?

References


