Emotional Intelligence Development in Radiography Curricula: Results of an International Longitudinal Study

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ABSTRACT

This article presents the findings from the first 3 years of a longitudinal study following a cohort of radiography and radiotherapy students through their qualification programs. The aim was to demonstrate any changes in emotional intelligence (EI) and to clarify the timing of any changes.

Methods: This was an international, longitudinal cohort study of student radiographers undertaking preregistration programs at four different higher education institutions. It was a survey design using a published and validated trait EI questionnaire. A mixed analysis of variance (Greenhouse-Geissler methods) was used with age and gender included in the models, as these were considered possible confounding factors. Sensitivity analysis was also applied because responses gradually reduced throughout the years.

Results: Across the 3 years of the project, there were no statistically significant differences demonstrated in students' EI scores between countries or between years. The mean scores per year over time showed a small, but not statistically significant change within the second year of the study, when there was a slight fall in the mean scores. The sensitivity analysis showed that the characteristics of the questionnaire completer group was not significantly different to the noncompleter group.

Conclusions: EI was not seen to change during the non-explicit EI content curricula within this study. The robustness of this finding falls away in the latter stages of this longitudinal study. Further research is recommended in curricula with explicit EI content. This study has provided a valuable benchmark for pre-explicit EI curricula.

RÉSUMÉ

Cet article présente les conclusions des trois premières années d'une étude longitudinale suivant une cohorte d'étudiants en radiographie et radiothérapie tout au long de leur programme de qualification. Le but était de démonter les changements éventuels dans l'intelligence émotionnelle (IE) et de clarifier à quel moment se produisent ces changements.

Méthodologie : Il s'agit d'une étude longitudinale internationale sur une cohorte d'étudiants en radiographie entreprenant un programme menant à l'agrément dans quatre établissements d'enseignement supérieur. L'étude est fondée sur un questionnaire d'intelligence émotionnelle publié et validé. Une analyse de variance à mesures répétées (méthodes Greenhouse-Geissler) a été utilisée, avec des modèles tenant compte de l'âge et du sexe, puisque ces facteurs sont considérés comme des facteurs de confusion possibles. Une analyse de sensibilité a aussi été appliquée, puisque le nombre de réponses diminue graduellement au fil des années.

Résultats : Sur les trois années du projet, les auteurs n'ont pas constaté de différences statistiquement significatives dans les notes d'intelligence émotionnelle des étudiants, que ce soit entre les pays ou entre les années. Les notes moyennes annuelles montrent une légère différence, non statistiquement significative, pour la deuxième année de l'étude, marquée par une légère baisse des notes moyennes. L'analyse de sensibilité montre que les caractéristiques du groupe ayant rempli le questionnaire ne présentent pas de différences significatives avec le groupe n'ayant pas rempli le questionnaire.

Conclusions : L'intelligence émotionnelle n'a pas paru changer durant la portion de contenu IE non explicite du curriculum dans cette

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étude. La solidité de cette constatáon diminue dans les dernières étapes de cette étude longitudinale. Il est recommandé d'effectuer d'autres recherches dans un curriculum ayant un contenu IE explicite. L'étude a donné une base de référence intéressante pour les curriculums dans lesquels l'intelligence émotionnelle est préexplicite.

Introduction

Emotional intelligence (EI) has been highlighted as a predictor of improved work performance, patient satisfaction, and career selection within medicine and allied health fields over the past decade [1]. Its importance has been particularly noted for diagnostic radiography and radiotherapy practitioners since these professionals often face highly emotive, personal tasks and work within a complex context of health, trauma, and cancer service provision [2]. This article continues to explore EI in the context of these practitioners' development, presenting the second part of an extensive international longitudinal study investigating student's EI [3, 4]. The trait model has been used for this work and was conducted within four higher education institutions, who tracked the development of trait EI in student radiographers as they progressed through their 2- to 4-year qualification programs. It also provides a comparison of data gathered from this cohort of students with published studies of qualified practitioners in both UK [2] and Australian populations [5].

The Background for EI Models

For over 2 decades, 2 main EI theories have been constantly applied in research: the trait model [6] and the ability model [7]. Because of the establishment of such a polarised environment within the EI research community, there has been much discussion regarding which model is most suitable [8] when conducting educational research into EI such as the randomised controlled trial conducted by Nelis et al [9].

To evaluate the way in which radiography students use emotions and perceive their emotional abilities, and because of its use in the early part of this longitudinal project, the trait model with its validated assessment tool (the trait EI or emotional self-efficacy questionnaire) was selected. It has psychological conceptual roots and was preferred over the ability model whose test, the Mayer-Salovey-Caruso Emotional Intelligence Test, suffers from a number of reported limitations [8, 10–12], and mainly measures EI as a cognitive ability rather than as a personality trait. As Petrides and Furnham conclude [13], there is no reason why these two concepts, trait and ability, cannot coexist.

Preliminary Findings from this Longitudinal Study

Mackay et al [3] reported that qualified practicing radiographers (both diagnostic radiographers and radiation therapists) have higher EI scores by comparison with radiography students at the start of their radiography programs [3]. The Australian students' scores were compared with Australian qualified radiographer population data and revealed significant differences in global EI and three of the four factors with the qualified radiographers mean scores being higher than the students. Global EI score students (S) = 5.01, qualified (Q) = 5.27 ($P \leq .01$); well-being S = 5.39, Q = 5.82 ($P \leq .01$); self-control S = 4.72, Q = 5.03 ($P \leq .01$); emotionality S = 5.11, Q = 5.25 ($P \leq .05$). Similar findings were demonstrated when UK and Irish students were compared with the UK qualified radiographer population data with highly significant differences in global EI and three of the four factors when compared with the UK qualified radiographers. Again, the qualified population mean scores were higher than for the students. Global EI score students (S) = 5.04, qualified (Q) = 5.28 ($P \leq .01$); well-being S = 5.41, Q = 5.75 ($P \leq .01$); self-control S = 4.52, Q = 4.89 ($P \leq .01$); emotionality S = 5.10, Q = 5.38 ($P \leq .01$).

These data suggest that somewhere between the start of a radiography program and practicing as a qualified radiographer, there is an increase in the EI of student radiographers. Yet, the validation data supplied with the trait EI questionnaires [7] state that trait EI is likely to remain stable during one's life with two exceptions. One is severe and abrupt changes to a person's circumstances, such as divorce or health problems, and the other is through *"…conscious efforts on the part of the individual."* p21. Therefore, it is reasonable to suggest that a student undertaking a degree program will be experiencing aspects of the curriculum that might impact on their EI such as reflection, exposure to emotionally charged patients, and staff encounters in health care. For example, a recent study by Revera and Lee [14] showed changes in students' EI through diversity education in a hospitality management degree and Nelis [9] has shown changes in students' EI following a training program using techniques and content such as role play, communications skills training, and reflection.

So, rather than EI remaining stable over the lifespan of a radiography student, radiography curricula, along with changes in personal circumstances such as leaving home to go to university, gaining autonomy, learning at a higher level of education, or experiencing the initial steep learning curve in entering a health profession might all influence the change needed to alter an individual's trait EI.

It is as yet unknown whether experiencing a radiography degree curriculum, qualification, and the transition from student to autonomous practitioner or indeed the first few years of practice might be the catalyst for changes in EI. However, it is important to note at this stage that the curricula involved in this study (and earlier work by Mackay et al [3] and McNulty et al [4]) did not have dedicated interventional programs designed to improve EI, unlike those in the work of Nelis [9] or Revera and Lee [14].

Aims and Objectives of the Study

This article presents the findings from the first 3 years of a longitudinal study following a cohort of radiography and