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## Promoting Peer Debate in Pursuit of Moral Reasoning Competencies Development: Spotlight on Educational Intervention Design

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### Abstract

*Research indicates that appropriately designed educational interventions may impact positively on moral reasoning competencies development (MRCD) as measured by a psychometric measure known as the Defining Issues Test (DIT). However, findings include that educational interventions intended to impact on MRCD do not consistently promote measurable pre-post development. This paper reviews the theoretical background to the use of educational interventions to impact on MRCD, and spotlights how underpinning Neo-Kohlbergian theory might inform the design of an intervention in order to optimise impact on MRCD.*

*Findings indicate that peer debate - regarding ethical concepts in profession-specific dilemma scenarios, what action(s) might be taken and how 'less than ideal' action options might be justified - is essential. Five examples of an adapted format of 'Neo-Kohlbergian' profession-specific 'intermediate concept measures' (ICMs) are included and were integrated into a 16 week blended learning educational intervention in a manner that promoted repeated exposure to peer debate regarding dilemmas, and the educational intervention design was trialled in a study with 27 volunteer community pharmacists in Ireland. An overview of the design, development and delivery of the intervention is provided. The paper concludes with recommendations for further development of the 'idea'.*

**Keywords:** moral reasoning development; educational interventions, DIT, Defining Issues test, Neo-Kohlbergian theory, community pharmacists, Intermediate concept measures.

**Disclosures:** None

### Introduction

Research indicates that appropriately designed educational interventions may impact positively on moral reasoning competencies development (MRCD) as measured by a psychometric measure known as the Defining Issues Test (DIT).<sup>1,2</sup> Underpinned by Neo-Kohlbergian theory (NKT), research shows that higher DIT scores increase the probability that healthcare professionals will make decisions in the patient's 'best interests' and/ or 'report' medical errors.<sup>1-7</sup> Underpinning theory also proposes that identified deficits in MRCD might be addressed by engagement with educational interventions that have been designed with reference to NKT and are appropriate to the context of professional practice.<sup>1,2,8</sup> However, such educational interventions do not consistently promote measurable pre-post development on the DIT, in which case the strategy or approach to intervention design merits review.<sup>1,2,6-8</sup> In addition, research by Latif and Berger indicates that community pharmacists, also referred to as 'retail' pharmacists, are a rare exception to the expectation that DIT moral reasoning scores increase with age or 'tenure'

in the Community/ Retail Pharmacy setting, in which case the availability of appropriate educational interventions would be a priority for this sector.<sup>9,10</sup>

The aims of this paper are to: 1) review NKT underpinning the use of educational interventions to impact on MRCD, 2) report how NKT can inform the design of interventions in order to optimise impact on development, 3) provide an overview of the design, development and delivery of an educational intervention that impacted on DIT scores of community pharmacists in Ireland<sup>11</sup> and 4) provide recommendations for further development of this approach to MRCD.

### Background: Neo-Kohlbergian Theory Underpinning Moral Reasoning Competencies Development

Moral reasoning is concerned with the cognitive or thinking processes individuals go through to arrive at a decision when faced with a dilemma.<sup>1</sup> NKT maintains that an individual processes or interprets dilemmas according to organising, conceptual structures in the mind that develop from and are influenced by experience.<sup>12</sup> Referred to as 'bedrock schemas', these conceptual structures exist to help individuals understand new information based on previous experience, and activate automatically without awareness.<sup>1,12</sup> Neo-Kohlbergian schema theory therefore proposes that schemas are highly contextual or profession-specific, they may

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be activated only to the extent to which they have been developed and an individual may 'default' to different bedrock schemas depending on the presenting professional dilemma.<sup>1,6,7</sup>

In context, professional dilemma situations occur where a pharmacist is faced with two or more action options that are individually convincing, mutually exclusive and jointly demanding but none of which is ideal and all of which might be questioned by peers if subjected to external scrutiny.<sup>1,13,14</sup> Activation of 'reasoning' depends on an individual having acquired the competencies to identify: a) the ethical concepts that are in tension to create a dilemma, b) what actions might be justifiable, and c) how others might be affected by the behaviour implied by each action option.<sup>1,8</sup> When decision-making or 'reasoning' through dilemmas, a professional will first access 'surface' level guidelines provided by rules, codes and norms governing practice of the profession and, where clear guidance is not evident, 'intermediate' or profession-specific concepts,<sup>1,8,12</sup> referred to as guiding ethical standards of the professional, will then be considered.<sup>15,16</sup> Only where the answer as to 'what should be done?' is not clear, will the individual 'default' to his/ her 'bedrock' schema.<sup>1,7,17</sup> The DIT measures whether bedrock schemas are activated (to the extent that the person has developed them) and engaged when decision-making through dilemmas<sup>1,6,7</sup> i.e. NKT assumes that there is a quality associated with individuals that can be properly called 'moral reasoning competency/-ies' and it can account to some degree for performance on the DIT. A morally defensible outcome is the objective of the reasoning process.

NKT proposes that moral reasoning is one of four psychological components, namely moral sensitivity (i.e. awareness of how actions chosen affect other people), reasoning, motivation (i.e. the prioritisation of moral values over competing values and influences) and implementation (i.e. perseverance and courage to implement actions),<sup>1,8,16</sup> represented, by the Four Component Model (FCM) Minnesota approach, as interactive elements in the development of a professional (Figure 1)

The Minnesota Approach emphasised that: a) there are cognitive and affective (feeling) processes associated with each component, b) each component involves different kinds of interaction between cognition and affect, and c) '*moral failure can be a consequence of a deficiency in any component*' (p.23).<sup>2</sup> A comprehensive professional development programme would therefore include direct instruction in each of the four components<sup>1,8,16</sup> i.e. while moral reasoning is the component of particular interest in this paper, there is no suggestion that this educational intervention alone comprises a professional development programme.<sup>1,2,8,16</sup> Introduction to and assessment of legislation ('Rules'), health policy ('norms') and professional Codes of Conduct/ Ethics would also be included in most professional programme curricula.

The components of an Intermediate Concept Measure (ICM) (Figure 1) are a short profession-specific 'dilemma' scenario, and series of action and justification choices that participants rate and rank (Appendix 1).<sup>8,16</sup> The profession-specific dilemma is generally prepared to include relevance to the principles of autonomy, beneficence, non-maleficence and justice and to several intermediate concepts relevant to the profession/ discipline e.g. confidentiality, capacity to consent and 'patient best interests'. The case study, action choices and justification items are presented in sequence and options proposed include those with a focus on self-interest (personal interest schema), maintaining rules and norms, and societal interests (postconventional schema). Scenarios may be identified through content analysis, survey of professionals or focus groups.<sup>16</sup> Seven to 12 action and justification options are developed for each scenario. The aim is to create a balanced set of four to seven profession-specific ICMs. ICMs are independently verified by respected educators and/ or practitioners ('expert group') and checked for omissions and consistency.

Performance on an ICM, when it is used as an assessment methodology, is indicated by the extent of the agreement in categories of action and justification choices with those of the expert group.<sup>16</sup> The use of scenarios designed to reflect dilemmas faced in the everyday practice of community pharmacy<sup>18,19</sup> with items and ranking systems grounded in the thinking and reasoning of respected educator and/ or practitioner members of the profession, is more likely to resonate with those engaging in professional ethics initiatives.<sup>8,15,16</sup> Reasoning about the intermediate concepts is in part a reflection of the default schema assessed (and activated) by the DIT – in this respect indicating that ICMs and the DIT are complementary.<sup>15,16</sup>

### The DIT: Evidence of Impact of Engagement with Educational Interventions

Claims for construct validity for the DIT as a test of moral reasoning are derived from, amongst other criteria, the measure's sensitivity to interventions designed to improve moral reasoning e.g. by showing pre-test/post-test gains on moral education programmes and interventions.<sup>1,2,20</sup> In context, intervention studies are similar to the more commonly observed longitudinal studies i.e. they test and retest the same subjects but, in contrast to longitudinal studies that generally run for at least 4 years, educational interventions are '*usually shorter in duration*' and '*have more control over what experiences the subjects have between testings*' (p.74).<sup>1</sup>

Key findings include that interventions involving discussion of dilemmas were found to be most effective, and produced moderate results, i.e. an effect size of .41 by comparison with the (meta-analysis) control group effect size of .09<sup>20</sup>, although these were generally incorporated into formal programmes, in

primary or second level schooling or in college or university settings. Interventions shorter than three weeks did not produce significant gains on the DIT, but long educational interventions (greater than 12 weeks) were not any more effective than interventions lasting from three to 12 weeks.<sup>1,2,20</sup> Older groups (college and adult groups) showed greater change in DIT scores than junior high or high school students.<sup>20</sup>

Penn argued that educational interventions must, in addition to moral discussion, also incorporate the cognitive skills of logic and 'role-taking' (from individual, group and institutional perspectives).<sup>21</sup> Analysis of pre-post measures of the impact of each of three variations of Penn's ethics course design, and two comparison groups, over a five-year period identified effect sizes nearly double those of the more successful moral education projects previously reported in the literature.<sup>21</sup> A 16 week intervention designed for undergraduate students in accordance with Penn's direct approach affirmed the generalisability of Penn's approach<sup>22</sup> – although McNeel also reported that students from some disciplines grew more slowly than others. Indeed, analysis of the impact of sustained education through multiyear (professional degree) programmes varied across many contexts e.g. longitudinal studies in nursing and dentistry both reported gains following the incorporation of ethics initiatives into the curriculum,<sup>2</sup> while teacher-training, accounting and auditing, counselling and medicine did not report gains.<sup>2</sup> Researchers concluded that the most successful initiatives incorporated: self-reflection, role taking, instruction in moral and philosophical concepts considered critical to MRCD, and discussion of individual cases of (profession-specific) problem-solving.<sup>2</sup> While findings from programmes and interventions are not directly comparable,<sup>1,2,20</sup> the findings further reinforce Penn's approach.<sup>21</sup>

The impact of a six-week ethics course, the design of which included '*transformative learning, self-knowledge/reflection, relationships between ethical and clinical knowledge, and responding to ethical disequilibrium*' (p.167),<sup>23</sup> on DIT Scores of 37 final year physical therapy students was found to be significant. Business students exposed to a '*novel pedagogical approach designed to foster ethical reasoning skills*' (p.367)<sup>24</sup> i.e. individual and team-based analysis of, followed by peer review of, each of two specifically prepared cases combined with 75-minute classes on business ethics delivered, in a University in the USA, over a period of three weeks also demonstrated pre-post increase in DIT scores.<sup>24</sup> While the relatively small sample size(s), absence of a crossover design and the authors' dual role as 'teacher' and researcher have the potential to limit the claims that may be made, these studies are examples of an educational intervention's impact on DIT scores as reported in the literature.<sup>23,24,40</sup> The publications, however, do not provide specific guidance as to what

intervention design would maximise the likelihood of a positive impact on MRCD.

Bebeau's work with the Minnesota dental licensing board during 1990 to 2005 provides evidence of measurable change in DIT Scores of practitioners.<sup>25,26,27</sup> Dentists (n=41) considered to have violated the Minnesota Dental Practice Act, as determined by the board, were referred for assessment and, pending the outcome of each assessment process, ethics instruction by Bebeau. This 'instruction' sought to address all four components of moral development (Figure 1) and was adapted to suit participant needs. The DIT was used as part of the initial assessment of moral reasoning, and as an outcome measure at the end of the intervention. Results indicated that changes in DIT Scores were found to be significant and effect size was very large.<sup>27</sup> While the sample size is comparatively small and it was/ is a resource-intensive approach, it is nonetheless a rare example of success with the DIT as a pre-post measure of the impact of engagement, by practitioners, with an educational intervention.

While international discourse relating to ethical issues in pharmacy practice published between 1990 and 2002<sup>19</sup> identified that the most common approach was to employ a '*scenario from actual pharmacy practice*' and then explore '*a variety of possible options to identify one or more defensible solutions*' (p.2383),<sup>19</sup> a finding consistent with NKT regarding the employment of profession-specific dilemma discussions in curriculum design, no pre-post intervention designs, using the DIT, were identified during that review by Wingfield and colleagues. Subsequent review, by Cooper and colleagues, reported that 'problems' were more common in the community setting than in other areas of pharmacy practice and that '*the pharmacy environment seemed to be ... relevant in terms of influencing the ethical reasoning of the pharmacist*' (p.85).<sup>18</sup> Latif and colleagues were confirmed as the only authors to have employed the use of the DIT in empirical ethics research in pharmacy between 1997 and 2003.<sup>18,19</sup> One study of the impact of an interprofessional healthcare ethics course, involving a weekly two-hour session for each of 16 weeks, reported that increases in DIT-Scores of participating medicine (n=114), nursing (n=59) and pharmacy (n=5) students were not found to be significant.<sup>28</sup> The importance of consistency with respect to the process by which the DIT is completed was emphasised by several authors.<sup>17,28,29</sup> Reports of assessment of practising pharmacists using the DIT continue to be rare, and existing studies appear to have used a mix of face-to-face and mail delivery of questionnaires to respondents.<sup>3,10,30</sup> No report of the use of the DIT as a pre-post measure of the impact of engagement with an educational intervention on pharmacists' moral reasoning as measured by the DIT was identified.

### Neo-Kohlbergian Theory: Impact on the Design of Educational Interventions

In summary, a literature review identified that an educational intervention should: a) be more than three weeks in duration, but not necessarily much longer than 12 weeks duration;<sup>20</sup> b) accommodate participant completion of the DIT, in a consistent manner, at the beginning and end of an intervention;<sup>12,28,29</sup> c) incorporate dilemma discussion;<sup>1,2,19,20,21</sup> d) seek to incorporate the cognitive skills of logic, role-taking and the intellectual construction of ethical concepts<sup>21</sup> and e) require participants to consider profession-specific concepts as encountered by practitioners.<sup>8,21</sup> Most of the criteria can be accommodated in educational interventions that are delivered 'face-to-face' or in blended learning formats that include face-to-face days at the beginning and end of the intervention. Participant' cognitive engagement in 'role-play'<sup>21</sup> and peer interaction required for 'construction of ethical [or professional] concepts' can, however, be difficult to assure.<sup>42,43,44</sup> The literature thus indicated that pedagogies engaging participants in individual and social-constructivism,<sup>42,43,45</sup> including the forcing of participants to role-play<sup>21</sup> and 'take a position',<sup>46</sup> could further support MRCD.<sup>15,21</sup>

Consideration of a profession-specific dilemma scenario involves deliberation(s) related to different courses of action an individual might take when faced with the dilemma proposed and the making of a judgement regarding which of the available actions would be most morally and/or professionally justifiable.<sup>1,14</sup> It became apparent that an adapted form of ICM,<sup>49</sup> recently introduced to stimulate participant engagement in role-play and in dilemma discussion, might also underpin the design of an educational intervention seeking to impact positively on MRCD as measured by the DIT.

#### Implementing ICMs in MRCD: An Example

A quasi-randomised repeated measures crossover study, in which volunteer community pharmacists, practising in Ireland, engaged with a series of five profession-specific ICMs incorporated into a 16 week 'blended learning' intervention reported change in moral reasoning scores of participants as measured by the DIT.<sup>11</sup> The situational factors and design elements of the educational program in this study are discussed here as an example of the implementation of the educational principles outlined above.

Community pharmacists in Ireland, and the pharmacies in which they work, must be registered with the Pharmaceutical Society of Ireland (PSI), the regulatory body governing pharmacy in Ireland.<sup>31</sup> At least one registered pharmacist must supervise the professional operation of a pharmacy during all opening hours and during the time of the study an average of 1.8 pharmacists were employed in each pharmacy.<sup>32,33</sup> The implication is that these community pharmacists did not have

pharmacist colleagues at the pharmacy for most of their working hours, indicating that 'isolation' and a lack of peer interaction might be of concern.<sup>34</sup> In addition, allocation of time to attend face-to-face educational interventions was a challenge, and an online or blended approach to continuing professional development initiatives would be expected.<sup>35</sup>

Recent research highlights many potential sources of dilemmas, both personal to and external to pharmacists.<sup>13,14,34,36-39</sup> The avoidance of professional dilemmas is therefore not possible for community pharmacists<sup>3,13,14,37</sup> and decision-making through dilemma scenarios is likely to take place within strict time constraints and without direct access to pharmacist peers.<sup>33,37</sup>

Despite perceived limitations with respect to the representativeness of volunteers for whom there was no remuneration or specific academic credit, and the expectation that attrition rates were likely to be high,<sup>34,40,41</sup> the volunteers nevertheless provide a snapshot of the population (of community pharmacists working in Ireland) at a particular point in time.

'Professional dilemma' case studies in use in Continuing Professional Development and/ or contemporaneously published in the Irish Pharmacy Journal were reviewed to prepare an initial list of 'key concepts', namely the four Principles of Autonomy, Beneficence, Non-maleficence and Justice,<sup>48</sup> and the concepts of Duty of Care, Patient Best Interests, Professionalism, Respect, Confidentiality and Consent. The five ICMs were designed to collectively target the range of ethical dilemmas likely to be triggered by conflicts between these 10 'key concepts' and therefore likely to maximise debate amongst peer groups of pharmacists.<sup>16,49</sup> Twelve action and justification options were developed for each scenario (sample in Appendix 1 and supplementary files).<sup>49</sup> Four of these 12 options were written to describe actions or justifications that reflected each of decision-making in the personal interests, four according to the maintaining rules and norms schema and the remaining four were to be indicative of postconventional reasoning.

In order to minimise potential impact of gender on participants, the gender of the 'pharmacist' and 'patient' generally alternated from one ICM to the next in the series e.g. in ICM3 Celine was the pharmacist and Charlie was the patient,<sup>49</sup> whereas in ICM4 (Appendix 1) a male (David) pharmacist and a female patient (Dianne) were written into the scenario.

Review by seven pharmacists considered 'expert' indicated that the scenarios presented were representative of dilemmas facing community pharmacists in Ireland at the time, no one obvious best or worst option was included in any of the five ICMs, and no obvious potential action or justification option

had been excluded. The 'expert' group comprised three academics and four practitioners, three of them being male and ages ranged from approximately 30 years to approximately 60 years of age.

The approach was derived from an established strategy (to ensure the integrity of the ICMs) used in the preparation of dental ICMs.<sup>16</sup> The profession-specific context of the scenarios increased the likelihood that moral development would be impacted.<sup>8,15,50</sup> The subsequent use of the panel of 'experts' to review each ICM provided assurance that the scenarios and options presented would be considered realistic by participants undertaking the educational intervention, at least to the extent that the aims of the Irish study, to assess the impact of an educational intervention on MRCD as measured by the DIT, could be achieved.

Consistent with the developmental approach, the dilemma scenario, and action and justification options were presented, in sequence, on the virtual learning environment (VLE) and, having declared their choices in advance,<sup>51</sup> participants were then required to engage (online) in groups, in a time period of one week, to achieve agreement regarding most and least preferred action options.<sup>49</sup> Participants in the study engaged with each ICM as outlined in Figure 2.

The requirement that each participant first independently identify ethical concepts in the dilemma, and state, with justifications, what action should be taken, before rating and ranking given options, introduces critical and independent thinking, logic and role-play to the process.<sup>21,50</sup> Having individually 'taken a position'/ declared an independent opinion,<sup>46,49,51</sup> reasoning and dialogue is required to negotiate to a point where 'Most' and 'Least' preferred options can be agreed by online groups of participants by a defined point in time.<sup>49</sup> The interactive 'social constructivism' designed into the group decision-making accommodates the underlying perspective that moral functioning is developmental and that a multi-dimensional approach should underpin the meta-cognitive demands of postconventional moral reasoning.<sup>1,17</sup>

The risk that practitioners might display, during discussions on ethical dilemma scenarios, 'poor professional performance' or 'professional misconduct'<sup>31</sup> has potential consequences for registered pharmacists as they adhere to the professional Code of Conduct<sup>47</sup> (CoC). To accommodate this risk, active management of online discussion fora by a knowledgeable facilitator and the assurance of confidentiality of participants in the online environment should be prioritised at the design stage of educational interventions. In the Irish study, participants were assigned pseudonyms (email addresses and related identities) by a gatekeeper during the first face-to-face day of the educational intervention, and participants thereafter benefited from 'the safe communicative space'<sup>52</sup> afforded by the use of pseudonyms in the online environment.

In these ways pedagogies/ andragogies engaging the social-constructivist approach evident in part 3 of the ICM process can align effectively with the online environment and with the objective of impacting on MRCD in statutorily regulated practitioners.<sup>31</sup>

In the Irish study, participants were introduced to the ICM process repeatedly during engagement with the educational intervention, with 5 different scenarios (Appendix 1 and supplementary files), in a manner that exposed them to a range of dilemmas typically faced in pharmacy practice,<sup>49</sup> as outlined in Figure 3.<sup>1,7,8,16,45</sup>

Delivery incorporated a blended learning format,<sup>35</sup> where the researcher interacted as both face-to-face tutor and online facilitator. This format accommodated the demands of the intervention and the challenges that face-to-face sessions posed for participants living/working in geographically remote locations. Participants attended for a full day face-to-face session at the beginning and end of the 16-week intervention. The content and format of these two days employed cognitive learning theories i.e. the educational intervention first introduced the notion of ethical dilemmas and reasoning frameworks typically used by healthcare practitioners.<sup>47,48</sup> Additional resources and supports such as weblinks, PDFs, presentations, quizzes, discussion fora and schedules of weekly chatrooms/ 'synchronous' written communications on the VLE, referred to as 'scaffolding' online, were identified to participants during the first (face to face) day of the intervention, and were available to participants throughout. Dates of increased workload in community pharmacies, e.g. at month end, were avoided when scheduling activities and task completion dates. Participants engaged online with the researcher and with activities by means of the VLE.<sup>11</sup> The design of the intervention accommodated participant completion of the pre-post measure (the DIT), as identified by their pseudonyms, when face-to-face at the beginning and end of the intervention and by means of postal services when acting as a control.

Participant engagement in activities, e.g. independent dilemma review, submission of option choices and/ or peer discussion fora or chatrooms for each of ICMs 1, 2, 3 and 4; or access to resource material through the VLE during the educational intervention was referred to as 'doses' of the intervention. In addition to 14 'compulsory' online activities facilitated during the two face-to-face days, participants could choose whether or not to engage in 31 optional 'doses' during the 16-week intervention. Participants engaged with, on average, 69% of the 31 optional activities in the intervention (Mean=21.37; SD=4.25; SE=0.82). Feedback was generally positive e.g., 'I loved it! I wish there was more of this type of interaction available for pharmacists in a "safe" environment' (participant 1) and 'I really liked the discussion element as it highlights the assumptions we make when making decisions'

(participant 2). The importance of the '*opportunity to debate and discuss in person*' (participant 3) during the 'face-to-face' last day of the programme was highlighted by several participants – some participants suggested that it was integral to competencies development, and the addition of a further face-to-face day during the 16 week period would be preferred. However, reference to 'engagement' was limited to measurement of 'activity' in the online environment, rather than the quality of interaction with resources or contributions to activities in the VLE. While commonly used as a measure of engagement (similar to attendance at lectures or laboratories for face-to-face sessions), recording 'hits' of online activity is a crude measure of engagement, and does not provide an indication of whether the participant reviewed resources downloaded from the VLE or reflected on contents therein.<sup>42,49</sup> There are therefore limitations to any inferences that can be taken from the use of online 'hits' or activity as a measure of engagement with any educational intervention. The participants received neither income nor any of the academic credits usually obtained following completion of educational interventions, and this factor had the potential to negatively impact on both recruitment of participants and the level of engagement with 'doses' of the intervention. Participants were volunteers, at cost to themselves. The fact that 27 of the 32 participants that attended the face-to-face day at the beginning of the intervention also attended the day at the end of the intervention (Figure 3), which represented an 84% completion rate, indicates that the intervention design was appropriate to their needs.

#### Observations: Insights Related to Further Development of this Approach to MRCD

Insights related to the use of ICMs in MRCD were derived by the first author from experience of delivering face-to-face sessions<sup>11,49</sup> and from facilitating activities online. If an educational intervention was to be adapted accordingly, it might 'reach' more participants and/ or increase the likelihood of a positive impact on MRCD.

- a) The use of a blended learning approach presupposes that the participant has adequate information technology (IT) skills to interact with the VLE. This may disadvantage participants not previously exposed to online learning. It can be difficult to 'help' those who are challenged by the VLE when communicating in that same VLE, so early face-to-face sessions may need to focus on these critical technical skills.<sup>43,44</sup> Additional scaffolding or supports may increase engagement with the resources and activities available such as the provision of:
  - an option to take a pre-course tutorial using the technology;
  - appropriate technical and administrative resources and podcasts/vodcasts, and automation/ adaptive release where appropriate;
- b) Group sizes should be small to increase online learning benefits.<sup>53</sup> Five per group is preferred, and sufficient numbers should be enrolled to accommodate that participants are exposed to different 'peer-feedback' (i.e. group members) during each ICM cycle. Active management of asynchronous online groups includes the need for assurance that activities occur in a timely fashion and facilitation must pay attention to guidelines that prompt timely engagement by all group members, so that those engaging in the early stages do not become prematurely disheartened with the online team work. A mixture of synchronous (e.g. chatrooms) and asynchronous (e.g. discussion fora) group discussions facilitates different learner types.<sup>35</sup> Notwithstanding the resource implications related to facilitation of online chatrooms or webinars, participant feedback indicates that some realtime interaction supports engagement.
- c) Technology creates a different communicative space with a permanent record of all interactions, and educators have a responsibility to seek to protect registered healthcare professionals/ participants from naivety, especially with respect to inadvertently referring to what might be interpreted as unprofessional behavior, in this regard. The maintenance of participant' confidentiality may be achieved, for example, by the use of pseudonyms.
- d) Participants at earlier stages of MRCD, whose perspective is more likely to derive from the 'personal interest schema', may benefit from first reasoning through more 'concrete' scenarios,<sup>1,6</sup> in which any dilemma in the scenario is resolvable within the letter of the law or a literal interpretation of the Code of Conduct/ Ethics.<sup>47</sup> They may also benefit from direct teaching of cognitive skills of logic and role-taking.<sup>21</sup> The ideal approach would be to score DIT questionnaires completed by intending participants prior to their engagement with an educational intervention so that the intervention content could be adapted accordingly.
- e) It is possible that participants would benefit similarly from less 'doses' of interventions i.e. in the Irish study, engagement with all 5 ICMs might not have been essential for development as measured by the DIT.
- f) While online records provide a means by which individual contributions and group 'outputs' or large numbers of students can be objectively assessed,<sup>49</sup> assessment and assurance strategies need to evolve to manage the risk of impersonation and plagiarism.

g) The 'dual roles', of investigating and delivering an educational intervention, has the potential to introduce personal bias.<sup>11,40,41</sup> Separation of these roles would be preferred.

The first author's ICM use in undergraduate and post-graduate MRCD initiatives, to cohort sizes from 10 (blended learning) to 170 (entirely online), in pharmacy and in other disciplines (2009-2017) has resulted in the following adaptations:

- Participants are now required to choose three (rather than 2<sup>49</sup>) best and worst options from the list(s) of 12 provided (Appendix 1), thereby further increasing the likelihood of debate related to the group's choices.
- Participant feedback highlighted that they rarely get the opportunity to discuss 'bad' options, and found it difficult to do so during the intervention. Participants must now explain, to other members of their group, their choice of a least preferred option in Part 2 (Appendix 1).
- In order to further drive peer learning, the first post by each group member (Part 3) must now include their answers to part 1 (independent analysis of the scenario) and 2 (their choices of action and justification options), with contributions posted within 24 hours attracting higher 'marks'. When engaging with undergraduate students, it can be possible to arrange for students to complete this task before they leave the face-to-face session.
- Output required from the group has been extended to:
  - post the group's three most and least preferred options
  - provide agreed advice (e.g. 250 - 500 words) for the pharmacist.
- All tasks are guided by rubrics of the format published by Roche, Thoma & Wingfield.<sup>49</sup>

### Conclusions

Attributes underpinning moral/ ethical reasoning are increasingly emphasised by pharmacy regulatory bodies as necessary at the point of application for registration as a pharmacist and/ or for continuation on the register of pharmacists. Irish, Canadian, United States and British Pharmacy Regulatory Authorities or Accrediting Bodies all refer to ethical reasoning and professionalism as essential attributes of a registered pharmacist.<sup>54-57</sup> Validated measures of MRCD are required to verify the attainment of these attributes and, when deficiencies are determined, that development subsequent to educational interventions can be verified.

Meta-analysis of critical thinking development in pharmacy undergraduate education indicates that the DIT should be the preferred measure, but finds little evidence of its developmental effectiveness in pharmacy education.<sup>11,58</sup> Collaboration between researchers, through complementary expertise and across jurisdictions, could accelerate

development of the evidence base for pharmacy. Notwithstanding that adaptation to 'local' terminology and legislation might be required, the ICMs developed for the Irish study (Appendix 1 and supplementary files) might be used in educational interventions with community pharmacists in other jurisdictions.<sup>11,49</sup> MRCD in other branches of the profession could be similarly investigated. Development of interprofessional ICM scenarios, with a focus on patient-centered care, would be an additional support to MRCD in the context of multidisciplinary decision-making.

Theory indicates that the DIT is a 'sound indicator of growth in complex thinking over the course of PharmD education'<sup>59</sup> (p.6). However, a single measure of MRCD is not ideal and additional measurement instruments should be investigated in tandem with the DIT.

DIT scores of first year Pharmacy students in the United Kingdom decreased from beginning to end of their first year of the Degree programme.<sup>29</sup> This finding is likely to stimulate investigation of MRCD in other 'existing' interventions and programmes, and, where deterioration of MRCD is identified, consideration given to how the trend might be effectively addressed. Individual ICMs, or varying numbers of ICMs, could be incorporated into existing or new interventions or programmes and investigated for impact on MRCD.<sup>49</sup>

Interventions designed to impact on MRCD may be required prior to application for registration as a pharmacist, during continued registration or following educational remediation further to fitness-to-practice hearings. Undergraduate students, practising pharmacists and 'educational remediation interventions' all have the potential to benefit from further investigation of this adapted format of ICMs in MRCD.

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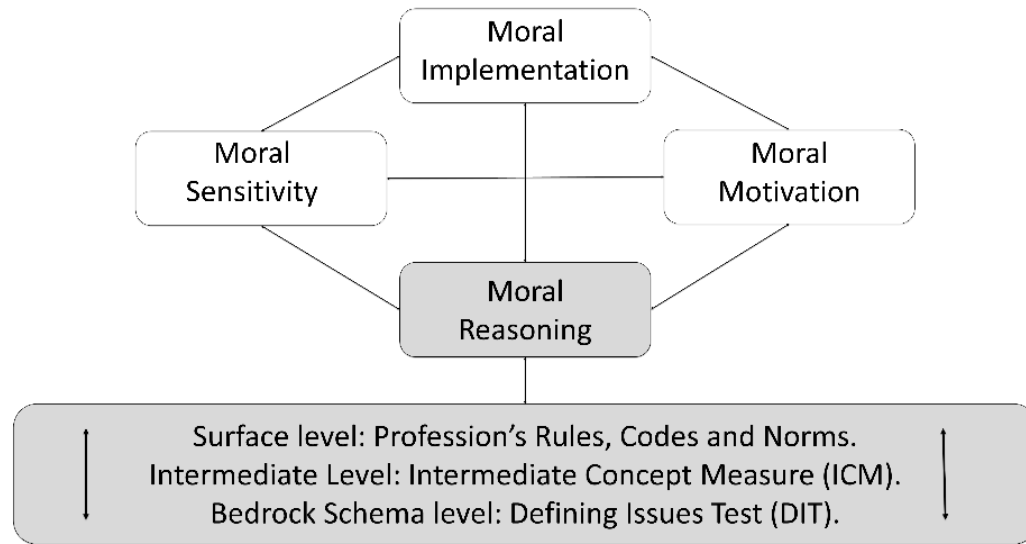
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Figure 1: The Four Component Model of Professional Development

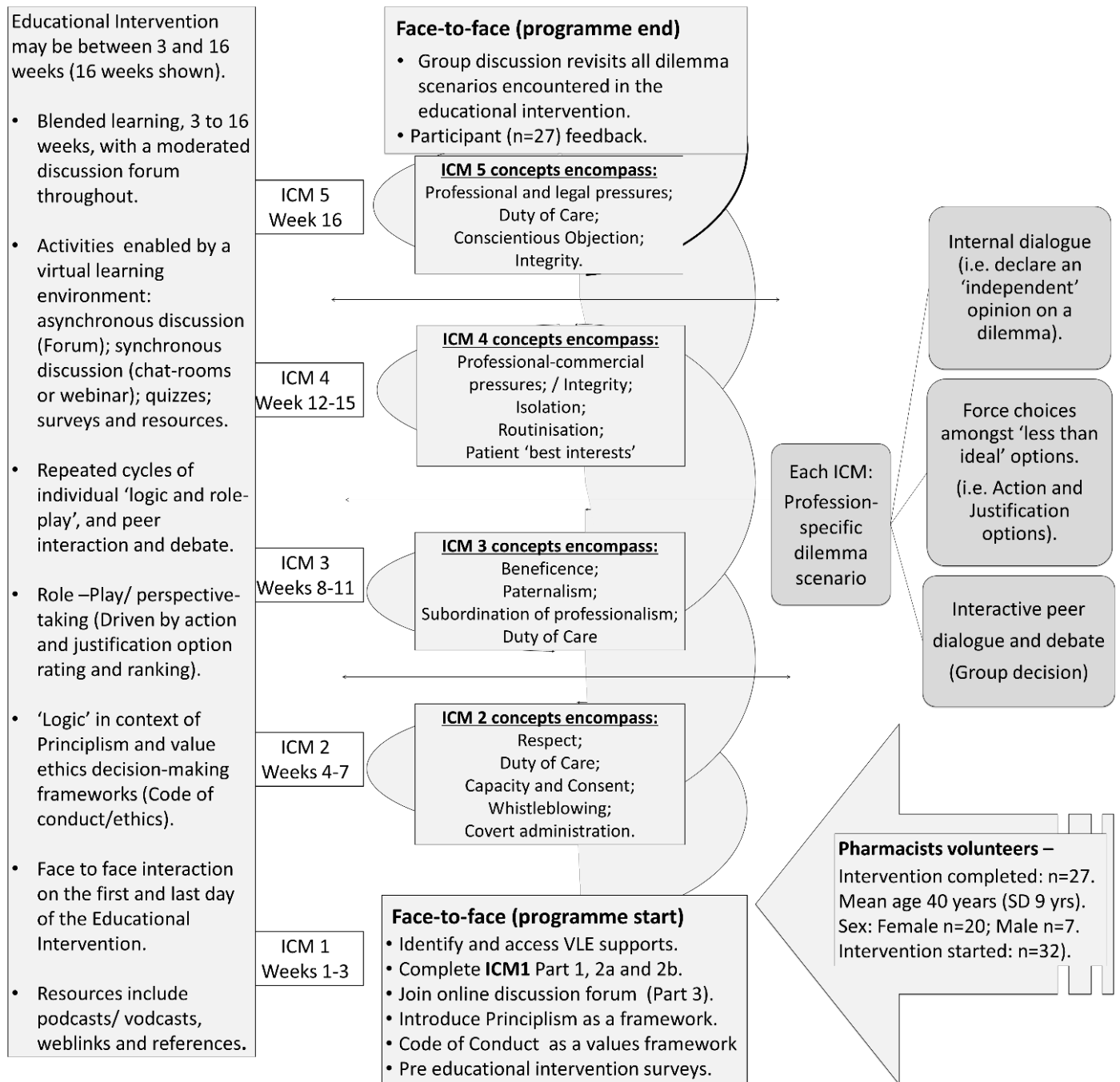


Adapted<sup>6, 12</sup>

Figure 2: ICM format as adapted for use in the educational intervention

Each ICM: Profession-specific dilemma scenario.	Internal dialogue (i.e. declare an ‘independent’ opinion on a dilemma).	Part 1	Participant independently identifies ethical concepts in the dilemma and states, with justification(s), what action should be taken, and responds online prior to accessing Part 2a.
	Force choices amongst ‘less than ideal’ options. (i.e. Action and Justification options).	Part 2a	Participant rates the 12 <i>action</i> options (Appendix 1), and then ranks the three most and least preferred prior to accessing Part 2b.
	Interactive peer dialogue and debate (Group decision).	Part 2b	Participant rates the 12 <i>justification</i> options (Appendix 1), and then ranks the three most and least preferred prior to accessing Part 3.
		Part 3	Participants are assigned to groups of circa 5, in the VLE, and, having declared individual members’ initial action choices, the group has one week to discuss online and post its agreed most and least preferred options for the scenario.

Figure 3: Moral reasoning Competencies Development: Incorporation of profession-specific ICMs into a Blended Learning Educational Intervention.



**Appendix 1: ICM4 used in the study.<sup>11</sup>****Scenario ICM 4: Duty of Care in times of economic uncertainty?**

David Dunbar is the relief pharmacist at the pharmacy early on a Monday afternoon. It's been a busy morning, but he doesn't object to that, and he makes sure to focus on providing a professional service to all patients. As of late, it is proving to be increasingly difficult to get relief work in the area – but one small chain of pharmacies, owned by a local non-pharmacist business-man, has provided a steady stream of work within comfortable driving distance from David's home. His economic circumstances make it difficult to pay the mortgage and he really regrets not having secured a 'permanent' position before the economic downturn. However, he enjoys his work as a community pharmacist, and is currently undertaking post-graduate studies in pharmacy.

A young woman arrives at the counter and introduces herself as Dianne Doe, a neighbour of the pharmacy owner. She requests a salbutamol\* inhaler saying she's wheezy. David reviews her file and observes that she does not have a current prescription for salbutamol. The family doctor listed on her file operates a clinic on Monday afternoons and David offers to phone the doctor's office and arrange an appointment for her. She declines and appears to be irate as she leaves the pharmacy.

Sometime later, the owner phones to say Dianne has been to see him, and instructs David to provide her with the inhaler. David starts to explain that there are a number of reasons why he cannot do that, but the owner ends the call before David has time to explain. 20 minutes later Denise, the full-time managing and superintendent/ designated+ pharmacist, arrives to the pharmacy. She makes it clear that she is angry her day off has been interrupted. She dispenses the inhaler for Dianne and phones her to say she will deliver it on her way home.

**What should pharmacist David do next?**

\* Depending on the jurisdiction, salbutamol may be under prescription control and/ or controlled by 'emergency supply' legislation. It is used as a 'reliever' by those with asthma, and would generally be used no more than three times weekly unless additional 'preventer' medication was also used. Increased usage of salbutamol can be an indicator that the patient's asthma is out of control.

+ ICMs may require some modification to accommodate different jurisdictions as terminology may vary e.g. if being used in Ireland, the term 'supervising pharmacist' would be appropriate as a licence to operate a Retail Pharmacy Business is provided by the Regulatory Body governing pharmacy, the Pharmaceutical Society of Ireland (PSI), on condition that responsibilities related to professional practice in the pharmacy are invested in a named pharmacist who is registered with that Regulatory Body, and who undertakes to act as 'Superintendent Pharmacist'. If the ICM is being used in e.g. Ontario, the term designated manager would be appropriate as a certificate of registration to operate a Retail Pharmacy Business is provided by the Regulatory body governing pharmacy (e.g. Ontario College of Pharmacists) on condition that responsibilities related to human resource management and supervision in the pharmacy are invested in a registered pharmacist, who undertakes to act as 'Designated Manager'.

**ICM 4 Action Options:**

**Rate the importance of each action, in coming to your decision, using the scale:**

**HD = Highly Defensible; D = Defensible; Q = Questionable; ND = Not Defensible**

- a. **HD D Q ND** : Ignore the fact that Denise dispensed the inhaler for Dianne as the basis on which she made that decision is not known.
- b. **HD D Q ND** : Phone an out-of-town tutor pharmacist for advice and/or insight into reasons why a pharmacist might behave in this way.
- c. **HD D Q ND** : Tell Denise that you regret that the owner interrupted her day off.
- d. **HD D Q ND** : Tell Denise that you respect her right to practice pharmacy as she believes appropriate but that you want her to justify dispensing a salbutamol inhaler to this patient without proper medical supervision as it risks doing harm to the patient and so it would be against professional guidelines to do so.
- e. **HD D Q ND** : Highlight to Denise that her actions are considered unprofessional, requesting that she apologize for making a fellow pharmacist look foolish to the patient, to the owner and to other staff.
- f. **HD D Q ND** : Contact Dianne's family doctor to highlight that she has had a salbutamol inhaler supplied without a current prescription.
- g. **HD D Q ND** : Try to further educate Dianne regarding the evidence base of treatment with salbutamol and give her contact details of the Asthma Society.
- h. **HD D Q ND** : Report Denise and the owner to the Regulatory body governing the profession.
- i. **HD D Q ND** : Tell Denise the series of events that led to her being phoned by the owner, the reasons for not dispensing and the concern that the owner was acting improperly in trying to pressurize a pharmacist into supplying salbutamol against his/her professional judgement.
- j. **HD D Q ND** : Prepare a written record of the events and have another staff member sign and date a copy of the record.
- k. **HD D Q ND** : Actively encourage Denise to relay to the owner that it is inappropriate for an owner to try to influence pharmacists in this way.
- l. **HD D Q ND** : Contact the Regulatory body for advice on what to do next.

***From the list above, choose what you consider to be the 3 best and 3 worst action options.***

***Rank the 3 most preferred action options:***

***Rank the 3 least preferred action options:***

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| • Most preferred option: _____        | Least preferred option: _____        |
| • Second most preferred option: _____ | Second least preferred option: _____ |
| • Third most preferred option: _____  | Third least preferred option: _____  |

**Rate the importance of each justification, in coming to your decision, using the scale:**

**G = Great      M = Much      S = Some      L = Little      N = No**

- a. **G M S L N** Denise will not approve of the owner being irritated in this way and it may impact on employment prospects for the relief pharmacist.
- b. **G M S L N** The practice of pharmacists allowing non-pharmacists to influence professional decision-making in this way cannot be justified.
- c. **G M S L N** The pharmacist is responsible for judging the scientific merit of a medicine so must not be influenced by non-pharmacists in making related decisions.
- d. **G M S L N** Failure to report the pharmacist in these circumstances could be considered professional misconduct, and lead to a pharmacist being called before the Regulatory Body's 'Fitness-to-practice' committee/ Committee of Inquiry and potentially struck off the professional register.
- e. **G M S L N** The pharmacist shouldn't let the patient control the treatment decisions.
- f. **G M S L N** It is the pharmacist's professional duty to alert the family doctor if the patient is taking prescription medication without regular monitoring by the family doctor.
- g. **G M S L N** In situations where a pharmacist is working hard to maintain professional competence and the 'good name' of the profession, including engaging in postgraduate studies, it is reasonable to not want to be tainted by unprofessional practice by other pharmacists.
- h. **G M S L N** Pharmacists ought to accommodate patients who are in urgent need of medicines, especially where they have been previously dispensed at the pharmacy, as they risk unnecessarily upsetting regular customers of the pharmacy by being inflexible.
- i. **G M S L N** Where a patient doesn't appear to understand the risks she may face if she continues to use salbutamol when she is not under medical supervision, it is the pharmacist's professional responsibility to try to ensure she is informed.
- j. **G M S L N** If one pharmacist is adamant about the exercise of his/her professional judgement in making a decision, then another pharmacist should respect that decision and not interfere.
- k. **G M S L N** In the long run, it's better to give up a little professional rigor than to risk being black-listed as a relief pharmacist to pharmacies in the area.
- l. **G M S L N** The pharmacist's duty of care to his/her patient allows him/her to breach confidentiality.

**From the list above, choose what you consider to be the 3 best and 3 worst justification options.**

**Rank the 3 most preferred justification options: Rank the 3 least preferred options:**

- Most preferred option: \_\_\_\_\_ Least preferred option: \_\_\_\_\_
- Second most preferred option: \_\_\_\_\_ Second least preferred option: \_\_\_\_\_
- Third most preferred option: \_\_\_\_\_ Third least preferred option: \_\_\_\_\_

**Please see supplementary files for all 5 ICMs.**