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Citation: Steven, Alison, Wilson, Gemma, Turunen, Hannele, Vizcaya-Moreno, M. Flores, Azimirad, Mina, Khakurel, Jayden, Porras, Jari, Tella, Susanna, Pérez-Cañaveras, Rosa, Sasso, Loredana, Aleo, Giuseppe, Myhre, Kristin, Ringstad, Øystein, Sara-Aho, Arja, Scott, Margaret and Pearson, Pauline (2020) Critical Incident Techniques and Reflection in Nursing and Health Professions Education: systematic narrative review. *Nurse Educator*, 45 (6). E57-E61. ISSN 0363-3624

Published by: Lippincott Williams & Wilkins

URL: <https://doi.org/10.1097/nne.0000000000000796>  
<<https://doi.org/10.1097/nne.0000000000000796>>

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2 **Critical Incident Techniques and Reflection in Nursing and Health Professions Education:**

3 **A systematic narrative review**

4

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10

11 **Abstract**

12 *Background :*

13 The terms Critical Incident Technique (CIT) and Reflection are widely used but often  
14 not fully explained, resulting in ambiguity.

15 *Purpose:*

16 To map and describe existing approaches to recording or using critical incidents and  
17 reflection in nursing and health professions literature over the last decade, identifying  
18 challenges and facilitating factors, strengths and weaknesses and discussing relevance  
19 for nursing education.

20 *Methods:*

21 A systematic narrative review was undertaken. Medline and CINAHL were searched  
22 using MeSH terms, returning 223 papers (2006-17). After exclusions, 41 were  
23 reviewed.

24 *Results:*

25 Papers were categorised into three areas: those describing the development of an  
26 original tool or model, those where critical incidents or events were used as learning  
27 tools, and personal reflections on incidents.

28 *Conclusions:* Benefits have been identified in all areas. More attention is needed to the  
29 pedagogy of reflection, and the role of educators in reflection.

30 **Keywords:**

31 Critical incident technique, reflection, nursing, health professions, learning, clinical  
32 teaching methods

33 **Introduction and Background**

34 The use of critical incident technique (CIT) and reflecting on incidents has  
35 become widespread across nursing and the health professions - often linked to patient  
36 safety and education.<sup>1,2</sup> However the terms 'Critical Incident Technique' and  
37 'Reflection' are often used without clear explanation or definition, having become  
38 'received wisdom' within nursing and healthcare education, research and practice - the  
39 assumption being one of shared understanding.

40 Such assumptions obscure diverse interpretations, adaptations, and methods of  
41 implementation, compounded by limited exploration of the purposes for which these  
42 techniques are employed and the ways in which they are operationalised. Norman and  
43 colleagues<sup>3</sup> suggest the most appropriate unit of analysis is not the incident itself but  
44 the 'happenings' revealed by respondents *reflecting* on incidents. A clear overview of  
45 the use of these linked techniques is needed so researchers and educationalists can  
46 understand variations, use these as inspiration, be clear about strengths and

47 limitations of diverse operationalisation of the techniques, and develop a shared  
48 language. This systematic narrative review aims to begin to fill that gap.

49         Since Flanagan’s seminal paper, the term ‘critical incident technique’ has  
50 become common across a wide range of industries, disciplines, and professions.<sup>4</sup> Later  
51 studies incorporated additional questions regarding participants’ reflections and  
52 feelings. Butterfield and colleagues<sup>4</sup> reviewed fifty years of CIT as a research method,  
53 noting further evolution and proposing the need to standardise terminology. Since that  
54 review, much additional literature employing variations of CIT has been published. One  
55 variation in nursing is the notion of a ‘significant event’ rather than critical incident,  
56 suggested as leading to better descriptions of the event.<sup>5</sup> Such variations indicate the  
57 continued evolution and flexibility of CIT as a research technique, potentially both a  
58 strength and weakness. <sup>6</sup>

59         A growing movement toward reflection on incidents<sup>4</sup> saw participants asked to  
60 consider the meaning, personal importance and motivation. This paralleled a rise in  
61 the 1980s/90s of the idea of reflective practice as a process of articulating and making  
62 sense of professional activities in health and social care. Furthermore as ‘patient  
63 safety’ emerged as a growing field drawing heavily on the aviation industry, so the use  
64 of CIT and reflection have burgeoned and reflection has, like CIT, become a familiar  
65 term. The various ways in which ‘critical incident techniques’ and ‘reflection’ are  
66 enacted and the purpose of their use have been little explored, therefore we  
67 undertook a systematic narrative review<sup>7</sup> to gather and analyse relevant literature  
68 focusing on the use of critical incident techniques and reflective practice in education  
69 for health professions.

70           The objectives of this narrative review were: to describe existing tools, models  
71 and approaches to recording critical incidents or learning events and reflection on  
72 these and to identify the challenges and facilitators and key components in each.

### 73 **Method**

74           A systematic narrative literature review<sup>7</sup> was employed allowing inclusion of a  
75 wide range of literature, such as anecdotal evidence, qualitative and quantitative  
76 findings.<sup>7</sup> The process shared some characteristics with a scoping study<sup>8</sup> or rapid  
77 review but did not seek to appraise the quality of the evidence examined.

78           In December 2016 a systematic search over the past decade was undertaken in  
79 two databases, Medline and Cumulative Index of Nursing and Allied Health Literature  
80 (CINAHL), then repeated in December 2017 to identify newer papers. Search terms  
81 were Critical inciden\* OR critical incident techniqu\* AND Reflectio\* OR learning. An  
82 information scientist helped with access to databases and the development of search  
83 terms and strings. The search deliberately omitted the term 'patient safety,' as this  
84 significantly reduced the number of potentially relevant hits, and did not result in  
85 additional papers. An initial search was carried out on the title and abstract only. A  
86 total of 223 papers were returned (see Supplemental Digital Content, Figure 1).  
87 Inclusion criteria were English language only, academic journal articles with full-text,  
88 related to medicine, nursing, physiotherapy, occupational therapy, or social work and  
89 evaluated the use of CIT or reflection as a learning tool. Papers not meeting inclusion  
90 criteria, and duplicates, were excluded.

91           Papers were dispersed across paired members of the international team for  
92 full-text analysis. We used a data extraction form developed from an amalgamation of

93 previous work<sup>9,10,11</sup> refined in international research group discussions. This allowed  
94 reviewers to systematically and consistently, review papers. Once all reviewers had  
95 analysed the papers, two authors discussed each data extraction sheet, and agreed  
96 papers appropriate for this review. A reference and citation search was carried out on  
97 all relevant papers with no further papers included. A total of 41 papers were included  
98 in the full review (Supplemental Digital Content, Figure 2). From initial data extraction,  
99 papers were categorised thematically in three areas: descriptions of the *development*  
100 of an original tool or model, critical incidents or reflection on events *used as a learning*  
101 *tool*, and *personal reflections* on critical incidents.

## 102 Findings

### 103 *Paper characteristics*

104 Twenty-four of the 41 retrieved papers were qualitative or quantitative  
105 research studies,<sup>12-34</sup> eight described a model or tool used for data gathering in  
106 teaching or research,<sup>35-42</sup> and eight were personal reflections.<sup>43-51</sup> Most studies were  
107 carried out in the United Kingdom (n=12),<sup>17,21,22,25,28,30,32,35,40,44,49,50</sup> and the United  
108 States (n=8)<sup>14, 19,26,27,31,39,41,45</sup> Others were from Australia,<sup>46</sup> Belgium,<sup>18,24</sup> Brazil,<sup>33</sup>  
109 Canada,<sup>12,15,20,36,37</sup> Cyprus,<sup>43</sup> Finland,<sup>13</sup> Ireland,<sup>47,48</sup> Norway,<sup>42</sup> South Africa,<sup>5</sup>  
110 Singapore,<sup>23</sup> Spain,<sup>29</sup> and Sweden.<sup>34</sup> Three of the studies were carried out in multiple  
111 countries: Norway and the United States,<sup>38</sup> Canada, Estonia, Finland, Sweden and the  
112 United Kingdom,<sup>13</sup> and Japan and the United Kingdom.<sup>16</sup> Twenty-six studies related to  
113 nursing, six to medicine, four to physiotherapy, three to social work and two to  
114 occupational therapy.

115 *Papers developing a tool or model*

116 Two papers specifically described development of a tool (for use) or model  
117 (explaining how something works).<sup>35,36</sup> Barksby, Butcher & Whysall<sup>35</sup> described a new  
118 model of reflection entitled 'REFLECT'. Menon<sup>36</sup> aimed to develop and validate the  
119 PERFECT tool (professional evaluation and reflection on change tool), a standardised  
120 critical incident tool which explored change and reasons for change in professional  
121 practice. Both aimed to achieve a thorough, reflective process, with REFLECT being  
122 developed for student and practitioner reflection<sup>36</sup> and PERFECT primarily as a  
123 research tool.<sup>35</sup>

124 *Papers using critical incidents or reflection on events as a learning tool*

125 Thirty-two papers used CIT or reflection as learning tools in nursing and health  
126 professional education.<sup>12-34,37-42,51</sup> Tools included written critical incident  
127 reports,<sup>13,16,17,21,22,28,31,33,40,51</sup> semi-structured interviews,<sup>5,18,19,23-26,30,34</sup> survey  
128 responses,<sup>27</sup> and reflective essays.<sup>45</sup> Some papers used multiple methods in collecting  
129 critical incidents: a reflective journal and focus group,<sup>15</sup> a critical incident questionnaire  
130 and group interview,<sup>29</sup> a combination of reflective journals, case studies, critical  
131 incident analyses, document analyses, and semi-structured interviews.<sup>32</sup> Novel  
132 learning activities were also described, designed to support the reflection of  
133 undergraduate students using stories, art,<sup>39</sup> and creative tasks.<sup>37</sup> Findings from  
134 Solomon's<sup>14</sup> study illustrate the rewards students gained from listening to personal  
135 stories and experiences as part of a learning event, however, other evidence was  
136 limited, with few evaluation outcomes.



137 Studies were viewed as a process for generating and enhancing learning<sup>19</sup> by  
138 optimising learning from real experiences,<sup>15,25</sup> specifically, understanding the meaning  
139 of learning,<sup>9</sup> development of critical thinking and reflection skills,<sup>5,13,21</sup> and creativity<sup>5</sup>.  
140 The use of reflection and CIT were also described as tools to benefit practice,  
141 specifically: making explicit their own assumptions,<sup>20</sup> gaining clarity about the  
142 incident,<sup>5</sup> reaching a positive outlook,<sup>5</sup> for self-empowerment,<sup>5</sup> for ownership of  
143 learning outcomes,<sup>5</sup> dealing with ethical issues<sup>5</sup>, cultural understanding,<sup>5,13,51</sup> the  
144 development of reasoning,<sup>27</sup> personal and professional awareness and behaviours,<sup>21,51</sup>  
145 and in facilitating respondents' reflection on communication.<sup>30</sup>

146 Reflection was generally viewed as a positive process for learning. Concerns  
147 included student hesitancy in writing reflective documents<sup>20</sup> and worries about the  
148 formality of written reflections<sup>42</sup>. Student understanding of CIT in an online tool  
149 without the educator's presence,<sup>34</sup> and workload, especially overloading students with  
150 additional written work<sup>5</sup> were considered barriers. Potential issues regarding accuracy  
151 were also noted, for example the impact of one or two months' time lag after an event  
152 on participants' ability to describe it in detail<sup>23</sup>. Comparing reflection on past and  
153 current clinical events<sup>12</sup>, reflection on current events appeared more beneficial,  
154 leading to enhanced motivation, self-efficacy, self-regulation, and turning learning into  
155 action. Other work highlighted difficulty in focusing on specific critical incidents<sup>30</sup>.  
156 Despite the focus of CIT on significant events, recall often includes non-events and  
157 situations where more than one event merge in an individual's mind<sup>25</sup>. Accuracy was  
158 also questioned if individuals were aware of their journal being read by a faculty  
159 member.<sup>20</sup>

160 *Papers using Critical Incident Technique in personal reflection*

161           Eight papers described personal reflections based on critical incidents.<sup>43-50</sup> Five  
162 were reflections by the author,<sup>43,47-50</sup> two papers report another person's  
163 reflection,<sup>38,39</sup> and one paper followed an ethnographic methodology with the  
164 reflection being observed and documented by a third person, in addition to  
165 interviewing clinicians and gathering audio-recordings of interactions<sup>46</sup>. Seven papers  
166 utilized structured models of reflection: Gibbs,<sup>48-50</sup> Johns,<sup>47,52</sup> Schon,<sup>45</sup> Smith and  
167 Russell,<sup>43,53</sup> and Duke and Appleton.<sup>44,54</sup>

168           The benefits of reflection were described as being empowering,<sup>43,45,47</sup>  
169 motivating,<sup>43</sup> bringing closure on traumatic incidents or conflicts and reducing bullying,  
170 interpersonal conflicts and horizontal violence.<sup>45</sup> Reflection also allows people to  
171 question their own assumptions,<sup>44</sup> closes the gap between theory and practice,<sup>47-49</sup>  
172 and enhances understanding of professional conduct and the importance of consent.<sup>44</sup>  
173 Authors advocated introducing reflection early in training and throughout the career,<sup>45</sup>  
174 as well as valuing the educator or mentor's role in reflection.<sup>43,45,49</sup> It was not just  
175 about doing reflection, but understanding the underlying processes and purpose<sup>45</sup>.

176 Limitations

177           The range of nationalities involved in this review was both a strength and a  
178 weakness, in our understanding of concepts. The inclusion of only English language  
179 sources means that other important material may have been excluded. Sources were  
180 all academic journal publications: inclusion of unpublished literature, may also have  
181 strengthened the review. A variety of tools, models and approaches were used in the  
182 studies examined. Tools were diverse. Studies used critical incidents or events in  
183 multiple ways with different or absent pedagogical approaches. Studies utilising  
184 reflection followed various models. Diversity and inconsistency make it harder to  
185 evaluate effectiveness.

186 Discussion

187           In nursing and in health care more generally the term critical incident has  
188 become closely linked to the field of patient safety. Safety-critical events focus on  
189 failures or malfunctions with serious consequences. Embracing this view may inhibit  
190 reflection on *positive* experiences or events from which much could be learned.

191           More attention is needed to the pedagogy of reflection – promoting an  
192 understanding of why we should reflect, and what the reflection is trying to do. It is  
193 important for students not just to think ‘we will reflect’ but ‘we will reflect in order to  
194 *learn*’. This point is drawn out, for example, in work on the use of reflection in  
195 interprofessional learning.<sup>55</sup> In nursing, Rolfe<sup>56</sup> has argued that reflective practitioners  
196 must ‘reassert the importance of experiential knowledge’ (p21). Another important  
197 issue is the role of nurse educators in prompting the reflective process – through  
198 offering alternative perspectives, otherwise potentially hidden from the student.

199 Conclusion

200 This paper has examined the use of critical incident techniques and reflection in  
201 literature on health professions over a decade. Papers have described the  
202 development of original tools or models, looked at the use of critical incidents for  
203 learning, and explored personal reflections on events. Benefits of using critical  
204 incidents and reflection on events in learning have been identified in all of these.  
205 However, the terminology used is diverse and the term 'critical incident' has negative  
206 connotations. Thus, future work needs to attend to the pedagogy of reflection, the role  
207 of educators in facilitating reflection and the use of positive experiences. With this, the  
208 further development of reflection on significant 'learning experiences' in the process  
209 of education for nursing and healthcare has huge potential for future practice.

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