

# TEACHERS, LEAVE THEM KIDS ALONE: DEBATING TWO APPROACHES FOR DESIGN EDUCATION IN MILITARY ORGANISATIONS<sup>1</sup>

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*The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise.*

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*Every assumption we hold, every claim, every assertion, every single one of them must be challenged...the structure and organization of our Army, both operational and institutional, may change drastically.*

General Mark A. Milley,  
39th U.S. Army Chief of Staff, October 2016<sup>4</sup>

## Introduction: Simon Bernard

The Canadian Armed Forces, like our allies, are facing a level of complexity in operations never seen before. The Operational Planning Process (OPP) remains a reliable strategic or operational planning tool for conventional operations, but the linear approach it establishes for campaign planning does present limits for an operating environment where militaries are engaged in multi-domain operations in a whole-of-government construct.

Systems thinking and design have proven to be innovative ways to look at complex or wicked problems. Yet military design has a reputation for being elitist, too dense and abstract for utility across the forces. Few Canadian Armed Forces (CAF) officers have had the opportunity to become 'design thinkers' and even fewer have held positions to apply it. Educating practitioners to enable them to conduct creative or divergent thinking is crucial for this innovative approach to overcome its poor reputation and gain momentum, and for it to become part of our toolbox for military planning and decision making. But how should the profession of arms conduct its professional military education (PME) to foster an environment where innovation and creative thinking can grow and be part of our DNA?

In this chapter, two subject matter experts on design thinking, Ben Zweibelson and Aaron P. Jackson, debate different approaches to integrate design thinking into our PME model. Should we teach junior members what 'the box' is before we teach them at mid-career level to think outside of it or reshape it? Or should we integrate design education across the Forces at entry-level to foster a culture change and embrace this approach CAF wide? In the debate below, Jackson advocates the first of these positions while Zweibelson advocates the latter.

This debate is important because design thinking has proven to be an effective way to face a complex environment and tackle a wicked problem. It is clear that we cannot afford to maintain the status quo and hope that our next war will be conventional by nature and that the OPP will suffice. Our recent operations in Afghanistan have demonstrated clearly that a linear approach to planning and the sequential conduct of operations has its limits. Each of the PME approaches debated here proposes a way to overcome these limits. It is hoped that this debate will stimulate further thinking about the best place for military design education within our PME model, and that it will provide impetus for reforms that will give the CAF the best chance for success in future operations.

## The Case for Entry-Level Design Education: Ben Zweibelson

Making the case for favouring entry-level versus a specialised-level design educational approach for military organisations requires a few critical positions be provided to readers. First, it ought to be demonstrated that there is little to no distinction between inexperienced or junior military professionals and senior professionals in learning and applying design in practice. While some may persuasively argue the value of experience and maturity within established professions, such as the military, with those attributes may also come the very barriers to innovative thinking and critical reflection in complex, emergent situations.

At a deep pedagogic level, the tension here is whether experienced senior professionals are better positioned to learn something radically different within the institution or if young and quite inexperienced professionals might be better positioned through fresh perspectives and an 'institutional innocence' of sorts. Albert Einstein did his ground-breaking work as a young patent clerk, not as a seasoned and senior professor in a university. Innovation and creativity hardly belong to the top floors of corporations or to general officer billets; an argument could be made that those locations are rather devoid of such things more often than we wish to admit.<sup>5</sup>

Secondly, a compelling case favouring entry-level military design ought also to provide examples of how the traditional military emphasis on controlling education and knowledge access is actually inhibitive for design pedagogy. These traditional forms feature a rigid hierarchical 'factory methodology' for military education.<sup>6</sup> This is no easy task, in that an additional institutional barrier exists within the military profession concerning the essence of introspective pondering beyond methodology and output. Militaries frequently are unaware of their own paradigm and its limitations,<sup>7</sup> and institutional efforts to justify the continued use of a single 'technical rationalist' approach tend to create a paradox of avoidance.<sup>8</sup> Militaries relish critical thinking within the confines of never questioning deeper institutional beliefs, tenets, and organisational behaviours.<sup>9</sup> This makes for many deck chair arrangements on the ship without considering the journey.

Militaries know how to plan through rationalised, analytic processes, as well as how to reliably critique adherence to or deviation from these processes. Yet rarely does a military 'think about its thinking' and explore alternative paradigms and learning processes that disrupt and challenge institutional norms. In this context, how might a process such as design, which operates beyond and outside rationalism and analytical structure, work within a military that tends to approach everything using universal and standardised processes for optimisation? Further, how might the suggestion be received that a new cognitive tool—such as design—should be introduced not at the higher levels of the profession but rather at the bottom? This

would contradict most existing military pedagogical norms across nations, services, and units within what military researchers term the 'modern military era'.<sup>10</sup> This is precisely why military design is needed broadly and systemically across all military professional education programs, so that organisational change might flourish through these reflective practitioners.<sup>11</sup>

The modern military era spans from the mid-17th century to the present day. Essentially, it commenced when the first military professional academies were established and written doctrine began to be published.<sup>12</sup> This coincided with the Industrial Revolution, as well as the Age of Enlightenment, which cumulatively developed the military organisation into a large bureaucratic and centralised hierarchy that focuses on analytic reasoning and a scientific management process oriented exclusively upon reductionism.<sup>13</sup> That assembly-line and efficiency-based management style is termed 'Taylorism' after its leading proponent.<sup>14</sup> Underneath all of this, militaries continued to educate through the pedagogy of essentialism. Essentialism dominated during the 20th century and is a teacher-centered model for standardised learning. Essentialism largely defines the majority of military professional education approaches and pairs strongly with the preferred organisational form of the military hierarchy that favours rigidly structured training, extensive procedural rules, and a resistance to divergent thinking.<sup>15</sup>

Traditional military education through essentialism categorises students by peer groups, where each group is taught the same material and evaluated with uniform metrics and scoring through a tiered system.<sup>16</sup> While the essentialist form is one of centralised hierarchies that mirror military command and control structures, the content for this educational approach consists of an analytic based optimisation model where students memorise facts and experience a single curriculum (regardless of class offerings, an infantry officer receives the same training as all other infantry officers, and so on). Students obey the teacher, and the teacher controls the distribution of knowledge as well as controlling the progression and development of all students.<sup>17</sup> The factory assembly line metaphor is aptly applied to all military career paths, through selection, tiers of education, performance evaluation as well as essential positions needed to open subsequent 'gates' to advancement.

The attraction of essentialism for the military seems obvious, in that the entire military decision-making methodology from strategy to tactical action is encapsulated in an 'ends-ways-means' objective-fixated logic.<sup>18</sup> This logic is rationalised in that deductive reasoning with linear cause-effect relationships provide the observer with the ability to soundly (rationally) predict consequences of potential actions prior to those actions being taken. Whether one considers the Joint Planning Process, Military Decision-Making Process, Adaptive Campaigning, Military Appreciation Process, NATO Operational Planning Process or other related decision-making methodology, these models all match the undertones of a rationalist and analytical approach to reality. Planning never had it so well, and thus military educational approaches integrate a functionalist planning epistemology within the teacher-centric essentialist pedagogy. The priority remains one of creating convergence, conformation and reliability, which make militaries remarkably effective and resilient in several (but not all) common military contexts.

Military design does not replicate planning, nor should it. Design is distinct from planning, although planning is also considered a form of designing within linear and reductionist constructs.<sup>19</sup> Planners do a focused form of design, while designers have greater freedom to design, as well as design for planning. Both design and 'planning

design' are cognitive processes that enable individuals as well as organisations to create and apply deliberate changes in the future that result in consequences that can be further considered. Yet formal military planning is oriented on predicting desired future 'end states' while design creates that which does not exist but is needed in future and emergent contexts. In other words, when a military plans it seeks out 'déjà vu' experiences where the emergent future appears to express relationships that the organisation has already seen. Hence, it can draw predictive reasoning from history, analysis, experience and wisdom.<sup>20</sup> What happens when an organisation experiences 'that which it has never seen before', or 'Vu' Jàde?

Design, whether used by a military or otherwise, is oriented on divergence, innovation, creativity and a wholesale rejection of the rigid and essentialist pedagogy.<sup>21</sup> While most military planning courses continue to employ largely essentialist pedagogical processes, a number of design schools of thought use either a form of constructivism or humanism.<sup>22</sup> These alternative pedagogies remove the teacher from the position of centralised control,<sup>23</sup> place students in an entirely different context and maintain a fluid and emergent outlook where students critically self-reflect, self-assess and self-motivate. In design, students are on their own journeys, often to novel and emergent destinations that neither the student nor teachers can predict. The 'ends-ways-means' logic is disrupted, in order to create the contexts for innovation and divergent thought.

Constructivism emphasises student experience with self-reflection, where one learns to 'think about one's thinking'. Humanism, also termed 'human-centric design' approaches design education with a focus on human empathy, contextual self-awareness and iterative framing.<sup>24</sup> Teachers use indirect approaches, emphasising a personalised and frequently emergent process of student self-motivation, personalised study, and a self-actualising process where grades are irrelevant as analytic measurements of entirely subjective and qualitative contexts.<sup>25</sup> With constructivism and humanism in design education, the entire frame (including self-described roles, structures and progression) change for students, teachers, and the process of new knowledge construction.

How do organisations teach their young? Do they teach their older members differently? For the military, what differences exist between basic training for entry-level recruits and that of seasoned executives, such as senior non-commissioned officers in the Sergeant Major's Academy? How is the basic officer's course different in form and function from war colleges educating senior officers? While the contexts and individuals are clearly different, the form and function actually remain quite similar, regulated within the overarching military educational system underpinned by a teacher-centric essentialist pedagogy.<sup>26</sup> Instructors at senior military schools might protest this comparison, however a careful examination of the form and function of the entire PME system illustrates a Taylorism-inspired educational management model for the career path of all officers and enlisted personnel, using a largely essentialist pedagogy manifest through standardised academic scoring, reports, school options, metrics, timelines, peer groups, and other manufacturing metaphors.<sup>27</sup>

Considering the length of time that a military professional experiences a particular methodology for education over a two or three-decade career, would the length of exposure to the essentialist pedagogy possibly create resistance towards alternative education through which design is best administered?<sup>28</sup> Would a war college student with 20 years of education and experience be more likely to reject and resist design

because it is explained and facilitated through a different and potentially opposing pedagogy? Would an entry-level recruit in their basic training or a cadet entering officer initial training be more open to alternative concepts such as design administered in alternative pedagogical approaches?

Unfortunately, there are no significant examples of junior or entry-level recruits being taught design in military organisations at the time of this writing, however there are indications of some design experimentation that may be implemented at some military academies.<sup>29</sup> In universities that emphasise the constructivist and humanist pedagogy as well as multi-disciplinary experiences, basic design courses are required for freshmen and sophomore classes, indicating that at least in non-military organisations design can be taught to the most junior and least experienced professionals.<sup>30</sup>

Why would this be of value for a military? Innovation is costly, and it remains a high-demand and low-availability cognitive commodity in organisations. Design thinking becomes for the military a useful process for fostering diversity of thought, creativity as well as critical self-reflection. When a military demands innovation from itself, it currently expects senior leaders to be 'generalised'—in that, upon reaching the maturity and high level of experience and success that the top performers accomplish over decades of service, these general officers must now become organisational change agents and 'out-of-the-box' thinkers. Yet, the one thing that most of them share is the ability to conform better than their peers at every critical career advancement gate along the path; they are masters of convergence and efficiency.

There is an increasingly popular argument that divergent thinkers, innovators and mavericks are being removed or driven away by the competitive process of military promotion and advancement, with only a minority remaining to command at high levels.<sup>31</sup> Paradoxically, it is at the strategic level that senior leaders are suddenly expected to not be the best in their peer group at convergence and conformity. Instead, they are supposed to be divergent and reflective practitioners able to generate major organisational developments into forms that are novel and lacking a performance history.<sup>32</sup> Would a senior leader unfamiliar and unexposed to an alternative way of sense making,<sup>33</sup> such as design, be more or less willing to accept it, or would that leader already be rather conditioned in an essentialist pedagogical methodology, so much that they may not tolerate design's constructivist or humanist approach?<sup>34</sup>

Design could be provided to all entry-level military professionals, both in schooling as well as during their first assignments through a variety of courses, exercises, and cycles of theory and practice. However, to do this requires the acceptance of humanist and constructivist pedagogical processes into rather rigid and formalised traditional military programs. Time and resources are limited, and the inclusion of design should not cause the elimination of another essential lesson. Further, teaching design requires a non-traditional approach for design educators, which is yet another requirement causing more investment and training.

We, in military organisations, demand a flexible and adaptive force led by senior leaders that are able to innovate and encourage necessary change while also enforcing relevant practices and traditions. Yet, we deny design education largely until some mid-career officers are exposed to it, and the enlisted corps are predominately absent from any formal design education despite making up the vast

majority of the armed forces. Meanwhile, entry-level students in several other fields and disciplines do receive design education, particularly in those fields with complex and challenging contexts such as public services, architecture, advertising, urban planning and social services. Militaries instead prepare only select senior and mid-grade leaders with design education, implying perhaps that everyone else need only focus on less dynamic problems.

The platoon leader as well as the squad leader on today's irregular battlefield faces just as many complex and highly emergent contexts as any general officer in a command post. Why are militaries essentially denying junior leaders a more comprehensive tool for thinking about complexity, while simultaneously providing limited design education only to populations of senior professionals already conditioned to one standardised mode of thinking, within peer groups already purged of most divergent thinkers and mavericks through years of institutionalisation? Perhaps it is more terrifying to the military institution writ large that design education at junior levels would be disruptive not just to traditional military pedagogic forms but to the entire form and function of the military enterprise.

## The Case for Specialised Design Education: Aaron P. Jackson

The intent of this chapter is to debate the most appropriate point at which design thinking should be situated within the PME continuum, and therefore where in a military career practitioners should start to learn design methodologies. Underlying this debate is a significant assumption: that the military practice of design thinking is desirable in the first place. On this assumption the authors of this chapter are in agreement and, accordingly, we are also in agreement about the nature of design thinking and how it ought to be taught.

To summarise what was elaborated in the previous section; design thinking is oriented on divergence, innovation and creativity, often employing constructivist or humanist epistemologies to guide student learning. These pedagogies are student-rather than teacher-centric and encourage students to self-reflect, self-assess and self-motivate. As students learn to design, assessment becomes both subjective and personalised because the emphasis is on student self-actualisation rather than on quantitative measurement.<sup>35</sup> Design as a methodology may include 'eclectic combinations of philosophy, social sciences, complexity theory, and often improvised, unscripted approaches in a tailored "one of a kind" practice'.<sup>36</sup> Accordingly, the emphasis is tripartite and is on the background and prior knowledge of the designer, the understanding they develop of the situation, and their exploration of possible solutions.

Just as the authors of this chapter agree on what design thinking is and how it ought to be taught, we also agree on how it differs from traditional military planning. Planning generally employs a technical-rationalist epistemology that focuses on 'ends-ways-means', and a methodology that reverse-engineers a plan by first determining a desired end state, then breaks this down into components, then linearly sequences these components as steps to achieve the desired end state. This assumes linear and predictable cause-effect relationships and is reductionist in that it also assumes that a desired end state is merely the sum of its component parts.<sup>37</sup> Both design and planning have appropriate roles and uses within militaries, and when best to employ one or the other is usually situation dependent.

The question concerning us in this chapter, then, is a rather narrow one: at what point in one's military career is it better to commence design thinking education? Although narrow, this question is nevertheless vitally important because the answer reflects who a military organisation would be willing to open the design 'tool kit' for, and when and how the tools within it ought to be used.<sup>38</sup>

Zweibelson's preceding argument for opening this tool kit to entry-level military practitioners is essentially two-fold. First, there is little-to-no distinction between the application of design thinking by junior or senior personnel, in terms of how effective they may be at applying it. Since some higher education institutions teach undergraduate students design, and since militaries require innovative junior leaders, why not teach military practitioners design thinking early and universally? Second, the current PME system at all levels—from recruits to general officers—is based on an essentialist paradigm that delivers uniform educational programs to each cohort of students in a teacher-controlled environment. The experience of this type of education system over the course of a career, and the radically different pedagogical paradigm necessitated by design thinking, results in a resistance to design thinking education when it is introduced at mid-career and senior levels.

In this section, I advocate instead that design thinking should be taught to field grade officers at the mid-career (O4 and O5) level and that, while educating for a general awareness of design thinking is desirable, it should be taught in detail only to a select group of 'military designers'. The reasons for this relate to the key role requirements of military practitioners at different levels. Specifically, what do militaries require their commanders and planners to do at different stages of their careers? This question is explored in detail in Alan Okros' broad-ranging study of Canadian Forces leadership,<sup>39</sup> which addresses the requirements established in Leadership in the Canadian Forces for military leaders to transition from 'leading people' to 'leading the institution' as they move to more senior ranks.<sup>40</sup>

Very briefly summarised, Okros observes that at the entry-level military practitioners have a pressing need to learn their core trade and develop knowledge of the core aspects of the profession.<sup>41</sup> For senior non-commissioned members and junior-to-mid level officers, the focus shifts to developing an understanding of broader issues beyond one's own core trade, for example how the joint force works, developing deeper solutions to more wider-ranging and more complex problems (Okros notes that 'the operational planning process dominates') and updating the core professional aspects learned at more junior levels. Finally, at senior levels, managing the institution requires analysing 'wicked problems' and developing strategic guidance to enable the organisation to function despite the often intractable nature of these problems.<sup>42</sup> Education requirements for these three areas can be respectively analogised to education in the disciplines of engineering, the natural sciences and the social sciences.

The problem with PME that Okros identifies, and which is echoed above by Zweibelson, is that at all levels it is based on pedagogical approaches that mirror those found in engineering; what Zweibelson labelled 'essentialist'. At lower levels, where the focus needs to be on learning core trades and being socialised into the profession and its accompanying norms, this approach is appropriate—especially in light of the limited time available to instruct new inductees. At mid and senior levels, however, this pedagogical approach becomes a hindrance. Continuing Okros' analogy, militaries are trying to teach natural and social sciences using an engineering approach.

The result is that contemporary strategic problem-solving tends to mirror tactical problem-solving but is merely grander in scale, and this approach does not work. Coincidentally, this is the reason why this author has recently come to prefer Guibert's term 'grand tactics' to the Soviet term 'operational art' when describing operations planning processes.<sup>43</sup> What we ought to be doing instead is teaching mid and senior level officers methodologies that are epistemically and ontologically suitable to solving wicked problems, using a pedagogical approach that is suited to teaching them. Design thinking is an excellent example of such a methodology.

Put simply, militaries first need to teach their members what 'the box' is, before they teach them to think outside of it or reshape it. Although junior personnel could apply design thinking itself just as well as senior personnel, the outcomes of this thinking may add much less value precisely because junior personnel do not yet have enough exposure to the core aspects of the profession. As Uhl-Bien, Marion and McKelvey explain:

*The significance of an adaptive moment is related to the expertise of the agents who generate that moment and to their capacity for creative thinking. Expertise and creativity are not necessarily co-resident in an adaptive event, of course. Quite obviously, creative individuals without training in physics are not going to advance that field, but neither are, one might argue, two physicists who are unable or unwilling to break out of their paradigmatic assumptions. Complex systems depend on the former (expertise) and stimulate the latter (creativity).<sup>44</sup>*

In the military context, design thinking is more likely to achieve desirable outcomes when it is applied by mid or senior level personnel who have already developed a thorough knowledge of the military profession.

The above quote by Uhl-Bien et al also highlights another aspect, which is that design thinking is only likely to work if applied by creative military personnel who are both able and willing to break out of existing paradigms. Not all military personnel are capable of this, and even less seem to be willing. However, as Zweibelson highlights above, there is a need to overcome resistance to new paradigms, such as design, when military personnel are taught at mid and senior levels—indeed, this is a core component of his argument for introducing design education at junior levels. Yet there may be another way to achieve this and, somewhat ironically, the introduction of the now-dominant technical-rationalist paradigm itself may serve as a guide.

This paradigm was introduced progressively over about 150 years from the early 19th century, coming to the point of near-universal dominance it has reached today after, and perhaps because of, the Second World War. This paradigm's gradual introduction is tied into two broader developments: the establishment and rise in the importance of military staff colleges;<sup>45</sup> and the progressive dominance of positivism and rationalism within society more broadly.<sup>46</sup> For the purposes of this chapter, what is important to remember is that initially these colleges were attended by only a small percentage of officers. Those officers, after graduation and once in a position of influence, demonstrated the utility of the skills they had been taught through the victories they achieved, the success of the Prussian general staff in planning the wars against Denmark, Austria and France in the 1860s–1870s providing an excellent example.<sup>47</sup> A more recent example is the role School of Advanced Military



Studies (SAMS) graduates played during the 1990–91 Gulf War. In the words of Robert Scales:

*During its formative period in the early 1980s, many in the [U.S.] Army leadership resisted the SAMS program mightily... All of these antibodies evaporated when the combat commanders realized the value SAMS graduates brought to their plans and operational staffs. After Desert Storm, SAMS went from a liability to a priceless asset.<sup>48</sup>*

As has been said numerous times before, history never repeats but it does seem to rhyme. A specialised mid-level design thinking course may have a similar effect to these historic examples, providing that its graduates are employed in positions where they can influence command decisions. Such a course would therefore need to be accompanied by, firstly, a generalised design thinking awareness program that teaches all military personnel what capabilities the specialist brings and, secondly, a specific career management stream for design thinking specialists that ensures they are not excluded from promotion and command appointments due to their specialisation. Providing these measures can be achieved, specialised design thinking education for mid-level personnel would maximise the value design thinking would add to contemporary militaries.

## Rebuttal: Zweibelson

Jackson offers an insightful argument that is the ideal substitute for widespread design education at all levels. While the cost to introduce design education appropriate to entry-level forces (both enlisted and officers) would undoubtedly be high, Jackson's proposition would be both cost-effective and in keeping with existing military special skill investments. Militaries select out of wide candidate pools the most promising contenders for filling high-skill positions, such as in aviation, medical and legal fields. For military design, candidates ought to be rigorously evaluated based upon design-centric selection criteria and, once educated in a long-term design certifying course, those military designers should be managed separately within a service for a career of specialised design application.

There are some problems with this approach. Unlike prospective medical students or aviators, the military has no true civilian parallel for developing a military design educational pipeline. While a military might chose to assimilate a purely civilian design educational program (such as Stanford University's 'D-school' or human-centric design at UC Berkeley), these civilian design methodologies are not directly exchangeable with military design applications in the way the medical, legal, and aviation fields largely are. The only military design programs that currently exist are military sponsored ones that differ by service, school, methodology, doctrine and theory.

Secondly, while junior grade professionals already have clear motives for pursuing well-defined careers in specialised skill areas such as the legal, medical or aviation fields, the military would need to develop the entire career timeline for military designers and determine what that even means. As design can readily be applied to strategic, operational, and even tactical constructs, a military design professional could potentially have myriad career directions to include leadership opportunities. If pursuing a military design career path eliminated senior command opportunities due to the specialisation requirements, a military might be intentionally preventing senior

leaders from possessing the necessary creative skill sets that we demand of senior leaders!

Lastly, Jackson takes a popular yet hard-to-demonstrate position on the value of military experience coupled with demonstrated prior success as an enabler for design education to a target population. Essentially, to be willing and able to break out of the military paradigm, only mid or senior professionals have the necessary experience and institutional familiarity to possess both of those mindsets. No matter the willingness of the junior professional, they lack the ability to properly frame the system in order to disrupt it in a novel and productive way.

In military design educational practice, the opposite has occurred quite frequently. Shimon Naveh, widely considered the father of military design, has stated in multiple interviews that teaching design to senior leaders tends to fail in part because it is too difficult to convince a highly successful (or possibly arrogant) professional that their past three decades of experience will not work with learning design, and they likely will impede it.<sup>49</sup> However, Naveh currently in practice appears to support Jackson's position, as he exclusively teaches military design to senior Israeli leadership on a monthly basis.<sup>50</sup> Dr Paul Mitchell, while developing the military design program for the Canadian Forces at the Canadian Forces College, came to similar conclusions on senior military professionals resisting design more than junior ones. Mitchell suspected that career progression likely influenced this; colonels (O6) within striking distance of promotion to general officer had less tolerance of the disruptive nature of design than field grade officers (O4 and O5, as well as warrant officers and senior non-commissioned officers) with far more manoeuvre room in their careers to experiment and deviate from socialised norms.<sup>51</sup>

In my personal experience developing design education in American, Canadian, and European military establishments, from the entry-level and junior professional level through to war college (senior professional) levels, military design suitability remains an elusive and problematic concept. Jackson's position is supported by several largely successful military design education programs, such as the Israeli Defense Force, the US Army at Fort Leavenworth, Kansas, and the Canadian Forces College. Yet prominent design facilitators in each of these programs express reservations on this narrow design educational approach and whether it is sufficient. Further, none of these programs or Services have experience with design at junior levels beyond isolated individual cases. Of these, the Joint Special Operations University (JSOU) in support of US Special Operations Command does provide design education to a wider range of students, accepting professionals at the enlisted rank of sergeant (E5) and officers at the rank of lieutenant (O2) or captain (O3). JSOU design classes frequently have students from all levels of experience, rank and specialisation within the special operations enterprise. While these JSOU design courses are shorter in length, there does not appear to be any measurable difference in aptitude or ability in students learning design.

On the matter of establishing a specialised class of 'design masters' for utilisation within a military organisation, there is ample room for caution here. Military design already has a reputation for being elitist, or too dense and abstract for utility across the forces.<sup>52</sup> The US Army already has specialised fields for strategists, operational researchers, operational planners, as well as tactical level trainers. As design can be utilised in all of these areas as well as others, a separate military 'design field' might create confusion and institutional in-fighting over identity, role and responsibilities. Perhaps the best way to consider military design might be as a flexible meal,

prepared for military consumers of all varieties, instead of focusing on a specific restaurant that provides 'design meals' for very precise clientele and diets. To take a page from nearly all children's breakfast cereal advertisers, 'military design should be a part of every complete breakfast', where that breakfast is analogous to a military confronting complexity. Learning military design concepts and theory provides all professionals at the tactical through strategic levels with what is needed for 'complete' cognitive abilities to navigate through complexity in human conflict.

## Rejoinder: Jackson

Having the last entry in this chapter, it falls on me not to rebut but instead to synthesise. While Zweibelson and I have herein engaged in a (hopefully lively) debate about where design thinking education may best be situated within the overarching PME continuum that follows military personnel from enlistment to retirement, our overall point of agreement is that military design education is currently under-emphasised and undervalued, as are paradigms outside of technical-rationalism in general. This imbalance is a matter that requires urgent redress, regardless of which of our arguments the reader may agree with.

One theme that has emerged in both of our arguments is the lack of data available in support of either of them. This indicates another area for urgent redress that we have not been able to confront in this discussion: it is time for an international survey of military design education courses. Such data collection and analysis would enable mutual learning and could become a stepping stone to best-practice implementation of second-generation design initiatives,<sup>53</sup> regardless of whether this is implemented at entry-level, mid-level, or both.

In overcoming this lack of evidence in support of one argument or the other within this chapter, I have perhaps had the easier task. While, to quote Zweibelson's rebuttal, 'the only [mid-level] military design programs that currently exist are military sponsored ones that differ by service, school, methodology, doctrine and theory', there are at least some examples of the implementation of mid-level design thinking education. Combined with my leveraging of historical examples of successful paradigm changing mid-level PME programs in 19th century Prussia and 1980s America, I have at least had something to refer to, disjointed and inconclusive though it may be.

Zweibelson, on the other hand, has had no examples to refer to at all. The closest he can draw on is that of JSOU, and although teaching design to personnel at E5, O2 and O3 levels is different to teaching it to those at O4 and O5 levels, it is also different to teaching it to personnel at entry-level. What Zweibelson is proposing is unprecedented, although he is right to point out that examples from civilian education programs indicate that his ideas may well work if militaries apply them rigorously and faithfully (and do not attempt to employ essentialist teaching methods to teach design education programs!).

Indeed, were any military to implement what Zweibelson proposes, it would by default become the world leader in implementing military design education at junior levels, particularly if it were to extend this education to junior enlisted personnel as well as to junior or trainee officers. While I have proposed a relatively conservative (read: safe) and by Zweibelson's own admission financially prudent approach to military design education, the sheer audacity of his own proposal is much truer to the radical innovation that design thinking itself intends to encourage in the face of

wicked problems. There is, in my view, additional merit in his argument due to this aspect.

Whether one agrees with Zweibelson's argument or my own, the most important point of this debate, and one that deserves reinforcement in this closing paragraph, is that there is an urgent need to consider where PME for design thinking should go next. The status quo is that design thinking is not being effectively practiced or taught outside of a small group of dedicated professionals who seem to have self-selected into it. As a result, the military application of design has to date been haphazard and, at best, the results have been sub-optimal.<sup>54</sup> This situation needs to be addressed, and the starting point for effectively addressing it is likely to be the delivery of effective PME for design thinking. Whichever of the above arguments readers agree with, doing something to invigorate PME for design thinking will be better than doing nothing.

## Notes

<sup>1</sup> This chapter was originally printed as: Ben Zweibelson, Aaron P. Jackson & Simon Bernard, 'Teachers, Leave Them Kids Alone: Debating Two Approaches for Design Education in Military Organizations', *The Blue Knight Review (Journal of the Royal Military College St Jean)*, Special Edition No. 2: Systems Thinking and Design, 24 January 2018. Online: <http://www.cmrsj-rmcslj.forces.gc.ca/cb-bk/art-art/2018/art-art-2018-4-eng.asp>. It is reprinted here with permission, due to the pertinence of its subject matter to the Australian Defence Force.

<sup>2</sup> Disclaimer: The views and opinions contained in this chapter are exclusively those of the authors and do not necessarily reflect those of any organisation with which any author is, or has previously been, affiliated.

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