

A NOVEL INSTRUCTIONAL DESIGN MODEL FOR MILITARY ACADEMIES: VALIDITY EVIDENCE FROM GENDARMERIE OFFICER CADETS

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Integrating military training with academic education at military academies presents a significant challenge. Consequently, officer cadets often develop skills and academic abilities through separate learning tracks. This disjointed approach can hinder their capability to apply both domains cohesively in real-world contexts. To address this, an innovative integrated instructional design model was developed to align military training and academic education. A mixed methods study was conducted to gather validity evidence for this model, involving surveys and focus group sessions with officer cadets of the ROYAL NETHERLANDS MARECHAUSSEE

(i.e. a Gendarmerie Corps) at the NETHERLANDS DEFENCE ACADEMY. The findings of this study indicate that this integrated instructional design model successfully fulfills the requirements of both military training and academic education, and they provide insights for its potential implementation. Future research could explore the model's applicability in other professional domains, such as police education, where similar integration challenges exist.

Key words: military academy; officer education; instructional design.

1. INTRODUCTION

Military organizations are often among a nation's largest training organizations, in which the range in training programs varies widely, enabling professional development varying from cooks to tank drivers (Kerry: 2013). Training is crucial to ensure military personnel are fully prepared for the demands and unpredictability of military operations. For example, Laslie (2015) pointed out that after U.S. involvement in the Vietnam War, training programs put American pilots in a much better position against their adversaries than technological advancements did.

However, limited budgets and training facilities, among other things, continue confine military training activities (Kerry: 2013; McIntyre & Smith, 2013). Therefore, military organizations have to optimize their training efforts, and strive for effective and efficient learning environments. Vogel-Walcutt et al. (2013) stated that there is a need for appropriate instructional strategies to design such military

learning environments. Grant and Wesolkowski (2013), Stanney et al. (2013) and Walwanis et al. (2013) also emphasized the importance of suitable instructional strategies and design to advance the military learning processes. Moreover, Christensen and Tremblay (2013) and Vogel-Walcutt et al. (2013) advised to utilize evidence-based instructional design (ID) to enhance military training. Drawing on these perspectives, this paper elaborates upon a specific branch of military training: instruction of officer cadets to become officers.

Note, the concept of training is, as described above, often used to refer to activities that promote learning in general. However, regarding the professional development of officer cadets, Hornstra et al. (2023) have previously explicitly distinguished between (military) training and (academic) education. Both learning tracks are viewed as essential parts of an officer education program. Herein, (military) training aims at developing skills in order to perform a particular task. For instance, officer cadets are trained in skills required

to provide basic medical care in field conditions and to implement protective protocols in the event of chemical warfare incidents. On the other hand, (academic) education aims at developing strategic thinking, which represents higher-order cognitive abilities in military and related knowledge domains, in order to cope with situations that may have never been previously encountered. For instance, officer cadets receive education in geopolitical theory to anticipate evolving geopolitical dynamics during the conduct of military operations in their future roles. The strategic part of an officer's job cannot be learned by skills, drills and instruction cards, but is much more ambiguous and dependent on circumstances.

Naturally, certain subjects can be examined from both a military training and an academic education standpoint. To illustrate, the subject of leadership encompasses, among other things, the ability to communicate clear commands as well as the study of diverse leadership theories. During military operations, officers often need to use skills and strategic thinking simultaneously or even integrated. As an example, in territorial defense operations, Dutch Civil-Military Cooperation officers are required to effectively influence civilian stakeholders (demonstrating communication skills), and to assess the interests and manage the potential

impacts of these civilian stakeholders on the military operation within a given context (exhibiting strategic thinking) (Hornstra et al., 2024a). Nonetheless, at a military academy, military training and academic education are typically not optimally linked (Hornstra et al., 2023).

Officer cadets must focus on military training, academic education and character development (Van Schilt: 2011; Lepinoy et al., 2021). In his study of character building during the professional development of Dutch officer cadets, Van Schilt (2011) concluded that military training and academic education are explicitly and formally embedded in the institution's curriculum, whereas character building is considered a process of socialization by peers.

In the military, a widely endorsed training philosophy is "train as you fight" (Rietjens et al., 2013), in which training is meant in the general sense (i.e. both military training and academic education). To honor this well-known adage, it is imperative to foster a meaningful connection between military training and academic education throughout the professional development of officer cadets. Thus, Hornstra et al. (2024b) designed an integrated instructional design model, the so-called TrEd (Training-Education, pronounced as "tred") ID model, based on both the Nine events of instruction model (Gagné et al., 1992)

as an ID model for military training and STAR Legacy (Schwartz et al., 1999a, 1999b) as an ID model for academic education (see Appendix 1). Supported by the definition of ID of Burton et al. (1996), an ID model can be defined as a model structuring

a systematic process that uses tenets of learning theories to plan and present instruction or instructional sequences... to promote learning.

(p.115). In other words, an ID model arranges the ID process, such an ID process produces a purposeful learning environment, and such a learning environment stimulates and facilitates the actual learning of the students (e.g. officer cadets). Herein designers and teachers (e.g. military trainers and academic educators) focus on promoting student learning.

Könings et al. (2014, p.1) emphasized that the collaboration of different stakeholders

can improve the quality of the instructional design process and the resulting learning environments.

Or as Martens et al. (2019, p.1205) put it, a collaboration of designers, teachers and students in the ID process

improves active student engagement, student experience and effectiveness of the learning environment.

While Hornstra et al. (2025) have explored the perspectives of

teachers, it is equally important to consider the viewpoints of other stakeholders, notably those of the students. Students, such as officer cadets, are the users of designed instruction as they undergo the learning process. Even if students are often unaware of the underlying design and its intentions (Deslauriers et al., 2019), they are experienced users of designed instruction and should bring their expertise into the ID process (Könings & McKenney, 2017; Könings et al., 2017; Martens et al., 2019). The viewpoint of the students should therefore be considered to help improve the ID and the resulting instruction.

In the military context, students should also be involved in the designing process (Culkin: 2017). Fawley and Kyrsak (2013) highlighted that instruction to officer cadets should be tailored to their specific characteristics and needs. Moreover, this recommendation fits well with the general shift in the military from a teacher-centered to a student-centered approach (Sagendorf et al., 2009), as is simultaneously observed in, for example, health sciences education (Alizadeh et al., 2024). The purpose of the present study was to gather validity evidence for the TrEd ID model at a military academy from officer cadets' perspectives in order to refine and optimize the ID's framework and to explore

the requirements of its potential implementation at a military academy.

2. METHODS

We conducted a sequential mixed methods study, consisting of a survey and focus group sessions, to gather further validity evidence for the TrEd ID model at a military academy. The purpose of the survey was (a) to ascertain officer cadets' awareness of ID frameworks and (b) to gain primary insights on what officer cadets consider important regarding an ID framework. These primary insights served as areas of emphasis for the focus group sessions. The purpose of the focus group sessions was (c) to obtain a deeper understanding of the officer cadets' perspective on the TrEd ID model and the requirements of its potential implementation at a military academy. Thus, from the survey we mainly derived *what* elements of an ID model are important or less important to officer cadets, whereas during the focus group sessions we explored *why* these elements are valued as such, and how these elements can be related to the TrEd ID model and can potentially contribute to the TrEd ID model's implementation.

2.1. Survey

The survey contained 14 items to be rated on a 5-point Likert scale,

being (1) not important at all, (2) not important, (3) neutral, (4) important and (5) very important. The items reflected the various elements (i.e. prescribed activities) of the TrEd ID model (e.g. item 4 which reflected element 2.a). The survey ended with 3 open-ended questions about officer education. In formulating the items and open-ended questions, we used layman's language (e.g. item 4: *When I learn something, the teacher must build on my existing skills and knowledge instead of It is important to activate prior skills and knowledge before starting the learning process*). As input for the focus group sessions, the items rated as (very) important ($M > 4.00$, 1-5 scale) and the items rated as less than neutral ($M < 3.00$), reflecting positive and negative opinions respectively, in addition to the items that generated strong differences of opinion ($SD > 1.00$), were considered particularly relevant. In addition, for each of the three open-ended survey questions, if over 25% of the respondents provided the same answer, reflecting a certain degree of consensus, this response was identified as an area of particular interest throughout the focus group sessions. See Appendix 2 for an overview of the items and open questions of the survey.

2.2. Focus group sessions

We subsequently conducted face-to-face focus group sessions.

Focus groups enable participants during a social interactive process to complement and refine each other's views on a topic. Focus groups are thus particularly useful to gain and enhance in-depth insights on a topic from the perspective of the participants (Hennink: 2014; Carey et al., 2016; Davis: 2016). We followed the guidelines of the Association for Medical Education in Europe (AMEE) Guide No. 91 on the usage of focus groups in medical education research (Stalmeijer et al., 2014). In addition, we applied Krueger and Casey's (2009) questioning route, as applied in the aforementioned AMEE Guide. See Appendix 3 for an overview of the questioning route as utilized during the focus group sessions.

Each focus group session lasted a maximum of 90 minutes. The sessions were directed by a semi-structured interview guide. See Appendix 4 for the semi-structured interview guide. The development of this guide was based on the teaching and learning activities suggested by the TrEd ID model. To prevent participants from merely reacting to the different elements of the TrEd ID model instead of engaging in active discussion, we did not provide this ID framework to the focus group participants.

2.3. Participants

As typical officer cadets at a modern military academy, the officer cadets of the

ROYAL NETHERLANDS MARECHAUSSEE (i.e. a Royal Gendarmerie Corps) at the ROYAL MILITARY ACADEMY of the NETHERLANDS DEFENCE ACADEMY (NLDA) have to concentrate on military training, academic education and character development (De Waard et al., 2021). These Dutch officer cadets are thus familiar with military learning processes related to military training and academic education. Moreover, a robust foundational officer education (i.e. military training and academic education) is essential for the continued individual professional growth and the overall effectiveness of the ROYAL NETHERLANDS MARECHAUSSEE (De Waard et al., 2021). Indeed, the deployment of gendarmerie forces is increasingly regarded as vital for the success of NATO peace and stability operations (Ciampini & Dziedzic, 2022). That is why our purposive sampling strategy consisted of officer cadets of the ROYAL NETHERLANDS MARECHAUSSEE at the ROYAL MILITARY ACADEMY of the NLDA.

As De Waard et al. (2021) described, in the Netherlands, all officer cadets of the ROYAL NETHERLANDS MARECHAUSSEE are educated at the NLDA. Officer cadets with a prior bachelor's or master's degree follow a shortened officer education program,

the so-called short model. Depending on their future positions, this category of officer cadets may need to follow additional technical courses at the EDUCATION, TRAINING AND KNOWLEDGE CENTER of the ROYAL NETHERLANDS MARECHAUSSEE. In the long model, officer cadets with high school qualifications need to complete a military science bachelor's degree, which is offered by the FACULTY OF MILITARY SCIENCES of the NLDA. Focusing on the requirements of their future positions, this category of officer cadets must follow additional courses at the same EDUCATION, TRAINING AND KNOWLEDGE CENTER. Furthermore, De Waard et al. (2021) mentioned that selected non-commissioned officers (NCOs) follow a specific officer education program, whereas specialists and reserve officers follow a shortened specialist education program.

To guarantee that the scope of this study was limited to military training and academic education in the military context, we only selected long model officer cadets. Moreover, to ensure that the scope was confined to academic education as we above defined it (i.e. provided by the FACULTY OF MILITARY SCIENCES of the NLDA), we only selected long model officer cadets at the ROYAL MILITARY ACADEMY before they attend

the EDUCATION, TRAINING AND KNOWLEDGE CENTER of the ROYAL NETHERLANDS MARECHAUSSEE. On top of that, we only selected senior officer cadets (e.g. at the end of the first, second or third year) who had the opportunity to reflect on their learning processes. After all, junior officer cadets (e.g. at the beginning of their first year) made the transition from civilian to military life recently and may be less able to reflect on the learning process that they just started.

2.4. Theoretical framework and methodology

The study was set within the constructivism paradigm. This paradigm underscores the importance of qualitative research methods that allow active co-construction of data and analyses by participants and researchers (Peters et al., 2013; Chandra et al., 2017). Therefore, we selected as our research method the combination of focus groups and thematic analysis, in which a preceding survey provided additional input to the focus group sessions. Furthermore, our study was based on a phenomenological approach. As a philosophical viewpoint, phenomenology claims that human experiences are the origin of all knowledge. As a research methodology, phenomenology intends to capture the meaning of a phenomenon, in terms of both what

and how humans experienced such a phenomenon (Teherani et al., 2015). Phenomenological research enables us to understand complex phenomena, including phenomena related to learning (Neubauer et al., 2019). Here, we meant to understand the TrEd ID model in the context of a military academy, through the experiences of officer cadets.

2.5. Setting and procedure

We performed our study at the ROYAL MILITARY ACADEMY of the NLDA in Breda, the Netherlands. The ROYAL MILITARY ACADEMY offers officer education to officer cadets of the ROYAL NETHERLANDS ARMY, the ROYAL NETHERLANDS AIR FORCE and the ROYAL NETHERLANDS MARECHAUSSEE (Van Schilt: 2011). During the morning roll call, the commander of the officer cadet battalion of the ROYAL NETHERLANDS MARECHAUSSEE at the ROYAL MILITARY ACADEMY invited the officer cadets to participate in the study. The dates and location of the survey and the focus group sessions were determined by this commander based on the participants' availability. As Carey et al. (2016) have recommended, to avoid a difference in interpretations of concepts, all participants of the focus group sessions have previously participated in the survey.

The survey was administered on paper in class by the company commander of the officer cadets to optimize the response rate (March 31, 2023; Breda, the Netherlands). The focus group sessions were introduced (e.g. purpose and protocol) and conducted by two researchers; one as the moderator and one as the observer (SH and PN respectively) (June 6, 14 and 15, 2023; Breda, the Netherlands). All focus group sessions were audio recorded and transcribed verbatim.

To avoid being seen as outsiders, the researchers, who were themselves military officers, opted to wear their uniforms during the focus group sessions. Furthermore, at their introduction, the researchers requested the officer cadets to be addressed by their first names instead of ranks. Moreover, the researchers explicitly encouraged the officer cadets to share their opinions during the focus group sessions, whereas the researchers did not express theirs. In this way, we hoped that the officer cadets were not inhibited in expressing their opinions, despite being outranked by the researchers. The researchers further stimulated the participants to share their ideas and experiences freely by guaranteeing at the start of each focus group session that all data would be processed and reported anonymously.

2.6. Data analysis

We continued conducting focus group sessions until data saturation was reached, i.e. until the time when new ideas no longer arose (Stalmeijer et al., 2014). The research team determined, by consensus, the time of achievement of saturation, based on the thematic analysis in progress.

In the thematic analysis, we followed the six-step procedure of the deductive approach, as prescribed by Kiger et al. (2020) in AMEE Guide No. 131 on thematic analysis of qualitative data: (1) familiarizing with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the report. Two members of the research team (SH and PN) conducted the thematic analysis, in which inconsistencies on codes and themes were settled by consensus. If consensus was not reached, these differences were found a solution to by discussion within the whole research team (SH, JH, SD, PN, WvM). We utilized SPSS (version 28.0.0.0) and ATLAS.ti (version 24) for analyzing the quantitative data of the survey and organizing the thematic analysis respectively.

Member checking in general provides the participants the opportunity to check whether they have been interpreted correctly by the researchers. We applied the more comprehensive approach of

Olmos-Vega et al. (2022), enabling the participants to elaborate upon their earlier views and the researchers' interpretations of these views as well. In this way, member checking is an even more valuable extension of the process of co-construction of knowledge. In order to contribute to scientific rigor, we performed member checking during and at the conclusion of the focus group sessions, as part of the ongoing interaction, by frequently summarizing and verifying our interpretations of the discussions. After the sessions, we performed additional member checking by presenting the research findings to the participants by email allowing them to further reflect.

2.7. Reflexivity

We followed the guidelines of AMEE Guide No. 149 on reflexivity in qualitative research (Olmos-Vega et al., 2022). So we considered reflexivity as a continuous process during this study, in which we rather benefit from than try to explain and neutralize the researchers' background. Additionally, we used Walsh's (2003) typology of reflexive dimensions, as applied in AMEE Guide No. 149: (1) personal (the influence of the researchers' subjectivity on the research), (2) interpersonal (the influence of relationships between the persons involved on the research),

(3) methodological (the influence of the methodological decision-making process and decisions on the research), and (4) contextual reflexivity (the influence of the context on the people involved and the research).

We performed a collaborative method of reflexivity: every about six weeks the research team had a meeting, in which we examined and managed the meaning of our decisions. These considerations were structured by Walsh's (2003) typology, and included throughout the different sections of this manuscript.

Because of the strong influence on this study, three comments about personal reflexivity deserve their own place in this text. Firstly, four researchers (SH, SD, JH, PN) are experienced as (former) military officers. Secondly, two researchers (SD, WvM) are experienced as medical specialists. Thirdly, four researchers (SH, SD, JH, WvM) have professional credentials in education.

3. RESULTS

In this section, we first present the quantitative and qualitative findings from the survey, followed by the qualitative findings from the focus group sessions.

3.1. Survey - quantitative

24 out of 24 respondents completed the survey. Table 1 displays

the demographic characteristics of the survey participants.

Table 1 Demographic characteristics of participants

Age (years)	20.88 (Mean) 1.51 (SD)
Academic year	1 (N=6) 2 (N=9) 3 (N=9)
Highest previous education	High school diploma (N=24)

Note N=24.

Table 2 shows an overview of the quantitative survey results. Participants had a more positive opinion about item 11 (*I want to get feedback when I am practicing and trying out solutions*) (M=4.21, SD=0.71), whereas they had a more negative opinion about item 5 (*Before learning something, the other officer cadets and I want to share among ourselves our existing skills and knowledge*) (M=2.22, SD=0.78), item 9 (*The teacher must guide me when I am learning*)

(M=2.63, SD=1.15) and item 13 (*When learning, I need an assessment of my performance*) (M=2.88, SD=0.73). Further, there is little consensus about item 1 (*When a class starts, the teacher must get my attention first*) (M=3.58, SD=1.08) and again item 9.

Table 2 Summary of the quantitative survey data

Item	Mean (SD)
1. When a class starts, the teacher must get my attention first	3.58 (1.08)
2. At the beginning of a class, the teacher must tell me specifically what I must learn	3.50 (0.96)
3. At the beginning of a class, the teacher must show a real-life problem that I must learn to solve	3.09 (0.78)
4. When I learn something, the teacher must build on my existing skills and knowledge	3.65 (0.76)
5. Before learning something, the other officer cadets and I want to share among ourselves our existing skills and knowledge	2.22 (0.78)
6. The teacher must demonstrate or present to me what I must learn	3.83 (0.76)
7. I want to compare what I must learn on the one hand with my existing skills and knowledge on the other	3.13 (0.90)
8. I want to improve my skills and knowledge by experimenting and studying	3.91 (0.58)
9. The teacher must guide me when I am learning	2.63 (1.15)
10. I want to practice and try out solutions	3.88 (0.53)
11. I want to get feedback when I am practicing and trying out solutions	4.21 (0.71)
12. When learning, I want to apply my new skills and knowledge in a real-life environment	3.79 (0.87)
13. When learning, I need an assessment of my performance	2.88 (0.73)
14. At the end of a class, I want to reflect on the way I learned, and compare what I learned to what I should have learned	3.46 (0.71)

Note 1=very unimportant 2=unimportant 3=neutral 4=important 5=very important

3.2. Survey - qualitative

Table 3 presents an overview of the qualitative survey results. Participants indicated that the most important aspects of their officer education program are the linkage with the professional domain (i.e. connection with their prospective professional responsibilities) (54%) and active learning strategies (i.e. instructional design) (29%). Further, the most noteworthy facets are the teacher's quality (50%) and again the linkage with the professional domain (29%). Lastly, the areas identified for improvement are lengthy non-interactive lectures (i.e. instructional design) (29%) and yet again the linkage with the professional domain (29%).

3.3. Focus group sessions - qualitative

Across the three focus group sessions (N=6, N=6, N=5), we identified five themes that described participants' perceptions of the quality of their officer education program, that is to say, military training and academic education at a military academy: (1) Demarcation of learning process, (2) Support of learning process, (3) Authentic learning environment, (4) Active learning, and (5) Overall long-term objective of learning process. Table 4 shows the five identified themes, along with their respective definitions and illustrative quotes.

Table 3 Summary of the qualitative survey data

Open-ended question	Answers with a certain degree of consensus (>25%)
What two aspects are most important to you in your officer education?	Linkage with professional domain (54%) Instructional design (29%)
What two aspects do you appreciate most in your officer education?	Teacher's quality (50%) Linkage with professional domain (29%)
What two aspects would you like to improve in your officer education?	Instructional design (29%) Linkage with professional domain (29%)

Table 4 Definitions of themes

Theme	Description	Example quote
Demarcation of learning process	Qualities of an adequate beginning and end of a learning process	“...what have we learned, how can we look back on it”
Support of learning process	Assistance provided to officer cadets throughout a learning process	“When I get feedback, I prefer something concrete that you can work with”
Authentic learning environment	Connection of classroom learning with real-world issues	“If you learn something in a classroom and you can, like, do it in the woods half an hour later, I think that’s really useful”
Active learning	Officer cadet engagement and participation in the learning process	“...encouraged to think about the content and thus form your own opinion...”
Overall long-term objective of learning process	Focus on the overarching goal of the learning process	“Producing a high-quality outcome, namely a competent military leader”

3.4. Theme 1 – demarcation of learning process

The theme “Demarcation of learning process” describes the qualities of both an adequate beginning and end of a learning process. Concerning that beginning, participants underscored the significance of a teacher capturing the attention of officer cadets at the commencement of a class to initiate the learning process. For instance,

if a teacher plays a video at the beginning,

...everyone starts looking at it and then it seems as if the class starts a bit smoothly.

(Participant 4, Session 1). However, they had a high opinion of a teacher who

can keep the class under control... and not necessarily whether he has the tricks or ideas [for gaining attention].

(Participant 4, Session 2). Additionally, they pointed out that paying attention from the outset is primarily a matter of

...discipline [of officer cadets]... [and] respect [of officer cadets towards the teacher]...

(Participant 4, Session 1), and it is thus not solely the responsibility of the teacher to ensure this.

Participants valued a well-defined conclusion of the learning process, which was facilitated through reflective activities, especially via questions posed at the end of the class. These questions were seen as instrumental in promoting reflection on both the learning process and its outcomes, thereby aligning with the learning objectives and effectively concluding the learning experience. For instance, participants appreciated closing questions such as “...*what have we learned, how can we look back on it*” (Participant 5, Session 1). The advantages of such reflective practices might not be confined to the cognitive domain but also encompass emotional benefits, as participants articulated,

I think it can help some people to build in some certainty if you experience stress from it [i.e. the learning process]...

(Participant 6, Session 2).

3.5. Theme 2 – support of learning process

The theme “Support of learning process” put forward the

assistance provided to officer cadets throughout a learning process, focusing on learning objectives and prior knowledge/skills in the early stages of the learning process, and explicit directions and feedback in the subsequent stages. Participants emphasized the critical role of learning objectives in aiding their focus and structuring their learning process. They noted that

The learning objectives often also appear in the exams, so you have a clear guideline throughout the lectures: Okay, this is really the most important part of the lecture and I really have to pay attention to this.

(Participant 3, Session 2). Additionally, participants stressed the importance of having concise and limited learning objectives, which allow for better pre-lecture processing:

...there could be six of them [i.e. learning objectives], really long sentences, that you just can't process right away. In the meantime, the teacher just keeps talking, because he just keeps going on with his presentation...

(Participant 2, Session 1). Furthermore, participants recognized the relevance of building new knowledge and skills upon existing ones. They reported that prior knowledge facilitated the understanding of new concepts, as stated in the commentary

I really noticed that: Oh yes, I learned this before [i.e.

prior knowledge] and that I could understand it [i.e. the new knowledge] more easily, I think, than if I had not had that prior knowledge.

(Participant 6, Session 1).

Moreover, the significance of explicit directions in the learning process was also underlined. Participants appreciated clear cues, such as

...this is important, so read this section of the literature...

(Participant 4, Session 1). They also valued other forms of guidance, including following the teacher's thought process and learning structured problem-solving methodologies, as voiced by participants respectively:

It was very nice to follow the teacher's train of thought.

(Participant 3, Session 1) and

...you learn to look at problems in a certain way, a kind of structured approach to a final solution.

(Participant 5, Session 1). In addition, feedback was deemed highly beneficial by participants, particularly performance-oriented feedback that offered concrete, actionable suggestions:

When I get feedback, I prefer something concrete that you can work with.

(Participant 4, Session 3). Affirmative feedback was also highly valued, as evidenced by participants' cheerful reactions to teachers' constructive comments:

Interesting that you look at it that way and thanks for your input. Just very positive.

(Participant 2, Session 1).

3.6. Theme 3 – authentic learning environment

The theme "Authentic learning environment" represents the connection of classroom learning with real-world issues. Participants thought highly of linking theoretical insights with direct practical application:

If you learn something in a classroom and you can, like, do it in the woods half an hour later, I think that's really useful.

(Participant 2, Session 1). In addition to that, with a view to the longer term, participants accentuated the necessity for an educational setting that addresses the future professional domain explicitly, as participants appreciated

...more focus on [professional] practice and on the future execution of our tasks.

(Participant 2, Session 3) for their learning environment. This focus includes visits to relevant professional locations such as "...an operational border control post..." (Participant 1, Session 3) and "...[the international airport] Schiphol..." (Participant 6, Session 2). Participants even communicated downright demotivation when the connection to their prospective professional area was not apparent, reflected in the remark

But the ROYAL NETHERLANDS MARECHAUSSEE was never discussed. So we thought: Well, whatever.
(Participant 3, Session 3).

3.7. Theme 4 – active learning

The theme “Active learning” describes the officer cadet engagement and participation in the learning process. Participants indicated an aversion to passive information absorption over extended periods, often metaphorically referred to as “sponging” (Participant 6, Session 2), which they felt “...leads to a loss of concentration” (Participant 3, Session 2). Instead, in class, participants valued the “*alternation between practice and theory*” (Participant 1, Session 1). They favored being

...encouraged to think about the content and thus form your own opinion...

(Participant 2, Session 1), resulting in

...not only acquiring knowledge but also learning to think [critically].

(Participant 3, Session 1). Indeed, they appreciated active learning methods such as “...discussion...” (Participant 2, Session 1), creating “...a video to explain the subject matter to your class...” (Participant 2, Session 1), watching

...a video and you get some questions about it... that you get some practical examples and how are you going to apply that [i.e. new knowledge/

skills] to it [i.e. video/practical examples].

(Participant 3, Session 3), and designing and reflecting on strategies through a “war game” (Participant 4, Session 3). At curriculum level, participants thought highly of the typical diversity of activities at a military academy, that is a “...*variety of sports, study, military activities*” (Participant 6, Session 2). However, participants cautioned against a standardization in active learning methods, in particular the so-called “syndicate assignments”, which can be experienced as tedious, as noted in the remark about their typical composition,

Here's an assignment, here's a question, you have five minutes, work it out with a group and then you present it.

(Participant 3, Session 2).

Simultaneously, they expressed fascination

...when someone tells a really interesting story for an hour and a half, with passion.

(Participant 1, Session 2). For such lectures to be effective, they prioritized a clear focus on the most essential content, avoiding excessive detail that could lead to confusion, asserting that it is critical that

... [a teacher] leaves it at the really important things, and doesn't go into everything with the result that in the end you don't even know what you need to know for the test.

(Participant 3, Session 1). Nevertheless, it was perceived

crucial that this focus does not become overly rigid. To prevent monotony in classes, flexibly incorporating “...experiences [of the teacher]...” (Participant 3, Session 3) and fostering “...interaction [between teachers and officer cadets]...” (Participant 3, Session 2) are essential.

In active learning in class, participants emphasized the pivotal role of the teacher, that is to say the military trainer and academic educator, as illustrated by the comment

...the teacher is very important, how a teacher stands in front of a group, how he speaks and how he takes into account the interaction of the class.

(Participant 6, Session 2). Elaborating on the teacher’s qualities, participants felt that, above all, a teacher has to be an “...expert...” (Participant 4, Session 1). While acknowledging the criticality of subject matter expertise, they stressed the imperative for teachers to present their expertise in an engaging manner, as remarked by the commentary

...so not very tedious and just that you can convey it a little bit nicely, that you make a nice story out of it.

(Participant 1, Session 1). At curriculum’s level, participants appreciated the variety of teachers as well, as reflected in the observation,

One time there is a professor who is a civilian, and the next time there is a general

or major standing in front of you.

(Participant 3, Session 2).

3.8. Theme 5 – long-term objective of learning process

The theme “Long-term objective of learning process” represents the focus on the overarching goal of the learning process, which is to transform officer cadets into competent officers. Participants made a point of the lack of cohesion between military trainers and (civilian) academic educators in their joint commitment to the professional development of officer cadets. This sentiment was echoed by participants who remarked,

...I don’t really feel a sense of unity between the faculty [i.e. academic educators] and the military academy [i.e. military trainers]...

(Participant 3, Session 3). Additionally, concerns about that collaboration emerged, with statements such as

...the faculty and the military academy are somewhat different islands...

(Participant 4, Session 3). Across different sessions, participants independently used the metaphor of “...a child of divorced parents...” (Participant 6, Session 2; Participant 4; Session 3) to describe their situation, feeling caught between military training and academic education. As a result, participants expressed a sense of “...living in two worlds” (Participant 3, Session 3), necessitating

...constantly switching... It shouldn't be that way, but that's how it works.

(Participant 2, Session 3). Consequently, participants emphasized

...that they [i.e. military trainers and academic educators] need to coordinate much better with each other.

(Participant 3, Session 3). They believed that a meaningful link between military training and academic education would be advantageous to their professional development, embedded in their response

...that this [linkage] is a much more effective way to educate officer cadets...

(Participant 2, Session 3). For example, participants discussed the

...great opportunity to link the knowledge of all the professors and doctors to a [military] exercise that we are going to do... this could be more intertwined...

(Participant 1, Session 3). They communicated downright excitement

...where we had really a linkage [between military training and academic education] and that was also really cool.

(Participant 2, Session 3).

Participants reasoned along the same lines that the objective of the learning process should extend beyond the mere achievement of passing exams, positing instead that assessments ought to serve

as a mechanism for determining the readiness of officer cadets for their impending duties. As a result, participants reported that teachers should orient their assessment strategies towards

Producing a high-quality outcome, namely a competent military leader.

(Participant 3, Session 1) rather than officer cadets jumping through hoops.

4. DISCUSSION

The results of our study provided validity evidence supporting the teaching and learning activities of the TrEd ID model, an integrated ID model for both military training and academic education, as an effective learning strategy for officer cadets. Additionally, the results offered potential directions for implementation of this ID model. In the below sections, we elaborate on these two main points.

4.1. Validity evidence for the TrEd ID model

The majority of the survey and focus group data revealed that officer cadets appreciated the activities linked to the sequential phases of the TrEd ID model. Table 5 illustrates the ways in which the activities of this ID model potentially jointly support the principal themes recognized by officer cadets as critical to the quality of their officer education program. The officer cadets' perceptions of this quality thus aligned with the TrEd ID model's teaching and learning activities.

Table 5 Alignment of TrEd ID model activities with key themes

Description	Theme
Getting attention Reflecting on learning process and outcomes in relation to the learning objectives	Demarcation of learning process
Providing learning objectives Activating prior knowledge/skills/experiences Sharing initial skills/ideas Comparing content with initial skills/ideas Providing guidance Providing feedback	Support of learning process
Providing authentic problem to be solved Performing skills/solving problems in authentic environments	Authentic learning environment
Showing content Complementing skills/ideas by experimenting and studying Practicing skills/trying out solutions	Active learning
Assessing performance/problem solving	Overall long-term objective of learning process

They considered *Activating prior knowledge/skills/experiences*, *Sharing initial skills/ideas*, and *Comparing content with initial skills/ideas* as either a single joint, aggregated activity or three closely interwoven activities that collectively connect the learning process with prior knowledge and skills. Officer cadets seemed to view activities related to addressing realistic problems, including *Providing authentic problems to be*

solved, *Complementing skills/ideas through experimenting and studying*, *Practicing skills/trying out solutions*, and *Performing skills/solving problems in authentic environments*, likewise either as a single activity or as four closely interconnected activities that collectively support practice in an authentic learning environment. These officer cadets' experiences suggest that the activities within the TrEd ID model do not need to be as distinctly separated and

linearly sequential as the design (see Appendix 1) displays. Consistent with Barua and Lockee's (2024) call for more flexible course design through customizing content and instructional strategies, this implies that teachers could adopt a flexible approach to the design, clustering activities or altering their sequence as needed, provided that the purpose of the activities continues to receive adequate attention.

4.1.1. Discrepancy between survey and focus group data

Based on the quantitative survey data only, it initially appeared that officer cadets either disagreed with or did not fully appreciate certain activities of the TrEd ID model. The findings from the focus group sessions subsequently revealed a more nuanced perspective. These initially suggested differences between the data appear attributable to several explanatory factors.

First, quantitative survey data indicated that officer cadets did not perceive a need to share their existing skills and knowledge with each other before initiating mastering new content. Focus group data clearly suggested that officer cadets nevertheless recognized the importance of building new knowledge and skills upon their existing ones. As previously mentioned, it appeared that they did not consider *Sharing initial*

skills/ideas a distinct activity. Additionally, it is conceivable that they were previously unfamiliar or uncomfortable with this specific activity, or they believed that there was no opportunity to engage in it during class due to time constraints.

Second, quantitative survey data demonstrated little consensus and appreciation regarding support during the learning process. Nonetheless, focus group data unequivocally showed that officer cadets greatly appreciated support during the learning process, including explicit directions. A possible reason for this discrepancy is that, when asked about the need for support without contextual information in the survey, some officer cadets may have anticipated a reduction in their sense of autonomy, which could negatively impact their intrinsic motivation (Deci & Ryan, 2000).

Third, according to quantitative survey data, officer cadets did not highly value assessments. The reason for this may be that, as focus group data revealed, officer cadets often perceived current assessment methods as artificial and lacking meaningfulness. Consequently, these assessments may fail to foster a sense of competence, thereby again not enhancing intrinsic motivation (Deci & Ryan, 2000).

Fourth, quantitative survey data indicated a divergence of opinions regarding the necessity for teachers

to capture officer cadets' attention at the beginning of a class. However, focus group data clearly underscored the importance of establishing a definitive starting point for the learning process. Given that discipline and respect are esteemed virtues among officer cadets (Van Schilt: 2011), some officer cadets viewed active participation in the learning process mainly as a personal responsibility. This perspective may account for the observed lack of agreement in the quantitative survey data.

4.2. Potential directions for implementation of TrEd ID model

The findings of this study offer recommendations for the implementation of the TrED ID model at a military academy. These recommendations concern the teacher's involvement, real-world connection, and linkage between military training and academic education. In the following sections, we discuss these recommendations in detail.

4.2.1. Teacher's involvement

We consider the role of teachers in fostering an active learning environment pivotal, as emphasized by the officer cadets. The TrEd ID model is a possible instrument to substantiate the active learning style desired by the cadets. After all, active learning implies students' active

participation in class to engage them in their learning process (Park & Xu, 2024), which is exactly the intention of the TrED ID model's activities. Wang (2023) emphasized the critical role of teachers in ID in higher education, highlighting their contribution to creating effective learning experiences and the resultant positive learning outcomes. With regard to officer education programs, Kem and Bassett (2018) arrived at the same conclusion. Consequently, proficient teachers, by which the officer cadets meant military trainers and academic educators who possess substantive knowledge and pedagogical expertise, should play an active role in introducing and applying models such as the TrEd ID model.

4.2.2. Real-world connection

In this section, we address the officer cadets' emphasis on the importance of an authentic learning environment and the integrations of the TrEd ID model with practical applications to bridge the gap between theory and real-world practice. The officer cadets persistently expressed the relevance of an authentic learning environment. It is therefore recommended that the TrEd ID model not be implemented in isolation from practice, but rather be used as a bridge to the real world. Various activities of the model explicitly aim to create an authentic learning environment, for

example, *Performing skills/solving problems in authentic environments*. However, the remaining activities of the TrEd ID model, such as *Showing content* and *Providing learning objectives*, can also be aligned with realistic situations. For instance, the teacher could illustrate the content with examples from professional practice or current events. As another example, the teacher could link the learning objectives to tasks within the cadets' future duties.

4.2.3. Linkage between military training and academic education

This section delves into the disparity that officer cadets experience during their professional development between military training and academic education. The officer cadets expressed that they generally perceived military training and academic education as separate and distinct domains within the military academy. For officer cadets, this historically evolved organizational division evidently introduces unnecessary obstacles in the planning and coordination of learning activities within a military academy as a whole. This disconnection also seemed to affect negatively their experience of the ultimate learning goal: becoming a competent military leader.

On such disconnections in general, Vygotsky (1978) offered a socio-cultural viewpoint. He

claimed that cognitive processes, such as learning processes, cannot be understood in isolation from their environment. Vygotsky (1978) posited that cognitive processes are shaped through language and tools in interaction with a socio-cultural context. In practice, this means that learning processes are developed through language use, terminology, methods, customs and practices. Consequently, during their officer education, cadets must navigate and adapt alternately to the distinct socio-cultural contexts of both military training and academic education. This necessitates proficiency in two separate sets of language and tools. According to Vygotsky (1978), this introduces unnecessary complexity into the cadets' learning process.

The validity evidence collected in this study for the TrEd ID model, as an integrated ID model addressing both military training and academic education, suggests that its terminology and procedure could help establish a unified language and set of tools for both military trainers and academic educators. This common ground could potentially strengthen the linkage between military training and academic education at a military academy, thereby enhancing the cadets' learning experience. By leveraging this common ground, military trainers and academic educators could eventually collaborate to

optimize the learning process of officer cadets. They could achieve this by cooperatively designing and offering real-life tasks within authentic learning environments. This approach would foster a unified socio-cultural context, wherein cadets would need to integrate both skills and strategic thinking.

4.3. Strengths and limitations

This study has a number of strengths. We conducted the research at the end of the academic year when all participants had already experienced both military training and academic education. Additionally, all participants, including first-year officer cadets, had ample opportunity to reflect on their learning process. This combination optimized the likelihood of obtaining well-considered and substantiated opinions from the cadets regarding their officer education experience. Furthermore, we limited this study to “long-term model students” only. This means that all participants began their officer education program directly after high school. Consequently, their opinions were not influenced by experiences at other higher education institutions but solely pertain to their experience at the military academy.

However, there are also some limitations. The Dutch officer education program of the ROYAL NETHERLANDS

MARECHAUSSEE was only added to the ROYAL MILITARY ACADEMY of the NLDA since the beginning of this century. This means that for nearly two centuries, the officer education programs there were merely focused on the needs of cadets of the army, and later also air force. Additionally, the group of officer cadets from the ROYAL NETHERLANDS MARECHAUSSEE continues to be small compared to the officer cadets from the other branches (a few dozens versus hundreds each academic year). As a result, the officer education program is naturally often primarily still oriented towards the army and air force, as repeatedly confirmed by the focus group participants. This orientation can negatively affect the ROYAL NETHERLANDS MARECHAUSSEE officer cadets’ perception of their officer education program, and consequently, the findings of this study. Furthermore, the reliance on single-site sampling potentially limits the transferability of the study’s findings to other military academy contexts. Moreover, the survey design may not have provided participants with sufficient contextual information to optimally interpret and consequently answer the survey questions. Lastly, the member checking procedure was not appropriate to contribute to our interpretation of the differences between the quantitative and qualitative data.

4.4. Future research

Future research should further explore the differences in the quantitative and qualitative data during follow-up focus group sessions with the participants in order to gain deeper insights into officer cadets' perceptions of the quality of an officer education program in general and the TrEd ID model in particular. In addition, adding perspectives from other groups of stakeholders of the officer cadets' learning process at a military academy, including future commanders of the officer cadets, contributing to further validity evidence for the TrEd ID model is necessary to acquire a full understanding of the TrEd ID model, and its practical implications for the military in general. Non-military fields are likewise challenged to bridge the gap between military training and academic education in their professional development programs, including police education (Voigt & Zinner, 2023) and medical education (Firstenberg & Stawicki, 2022). So future research could also aim to collect validity evidence for the TrEd ID model in additional fields.

5. CONCLUSIONS & ACKNOWLEDGMENT

This study provides validity evidence for the TrEd ID model as an integrated ID model that effectively meets the requirements of

both military training and academic education for officer cadets. The TrEd ID model's activities thus align with the key themes identified by officer cadets as crucial to the quality of their officer education program. However, the findings of this study indicate that military trainers and academic educators could employ a flexible approach to the ID model. They can group the TrEd ID model's activities or modify their sequence as necessary, as long as the objectives of the activities remain adequately addressed. Regarding the implementation of the TrEd ID model, providing authentic meaningful content and context by competent military trainers and academic educators in collaboration was perceived paramount from the officer cadets' perspective.

5.1. Acknowledgment

We thank the following officers of the ROYAL NETHERLANDS MARECHAUSSEE for their support and organization: LCOL Mark Helgers, MAJ Dewi Kunstt, CPT Daan Langenberg and CPT Vincent Engelen.

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Appendix 1 –TrEd ID Model (Hornstra et al., 2024b)

Phase	Activity
1) Focusing	a) Trainer/Educator getting attention b) Trainer/Educator providing learning objectives c) Trainer/Educator providing authentic problem to be solved
2) Getting ready	a) Trainer/Educator activating prior knowledge/skills/experiences b) Learners sharing initial skills/ideas a) Trainer/Educator showing content (e.g. demonstration, presentation)
3) Presenting	b) Learners comparing content with initial skills/ideas c) Learners complementing skills/ideas by experimenting and studying a) Trainer/Educator providing guidance (e.g. discussion, tools, checklists, job aids)
4) Practicing	b) Learners practicing skills/trying out solutions c) Trainer/Educator/Learners providing feedback a) Learners performing skills/solving problems in authentic environments
5) Getting real	b) Trainer/Educator/Learners assessing performance/problem solving c) Trainer/Educator/Learners reflecting on learning process and outcomes in relation to the learning objectives

Appendix 2 – Survey Officer cadets about their officer education

The survey contains 14 statements and 3 open-ended questions about your officer education. Please rate each of the following statements on a scale from 1 to 5, with (1) being not important at all and (5) being very important. Please answer each open-ended question. This survey takes a maximum of 15 minutes.

1. When a class starts, the teacher must get my attention first.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

2. At the beginning of a class, the teacher must tell me specifically what I must learn.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

3. At the beginning of a class, the teacher must show a real-life problem that I must learn to solve.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

4. When I learn something, the teacher must build on my existing skills and knowledge.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

5. Before learning something, the other officer cadets and I want to share among ourselves our existing skills and knowledge.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

6. The teacher must demonstrate or present to me what I must learn.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

7. I want to compare what I must learn on the one hand with my existing skills and knowledge on the other.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

8. I want to improve my skills and knowledge by experimenting and studying.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

9. The teacher must guide me when I am learning.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

10. I want to practice and try out solutions.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

11. I want to get feedback when I am practicing and trying out solutions.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

12. When learning, I want to apply my new skills and knowledge in a real-life environment.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

13. When learning, I need an assessment of my performance.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

14. At the end of a class, I want to reflect on the way I learned, and compare what I learned to what I should have learned.

(1) not important at all (2) not important (3) neutral (4) important (5) very important

15. What two aspects are most important to you in your officer education??

16. What two aspects do you appreciate most in your officer education??

17. What two aspects would you like to improve in your officer education??

Appendix 3 – Krueger and Casey’s (2009) Questioning route for focus group sessions, as applied in AMEE Guide No. 91 (Stalmeijer et al., 2014)

1) *Opening questions*

Facilitate early engagement in the discussion.

2) *Introductory questions*

Introduce the discussion topic and encourage participants to reflect on their personal connection to it.

3) *Transition questions*

Transfer the discussion towards the central questions that drive the study, thereby setting the stage for productive key questions.

4) *Key questions*

Discuss the key questions driving the study.

5) *Ending questions*

Conclude the discussion effectively.

Appendix 4 - Semi-structured interview guide

Opening questions (10 minutes)

- 1) Which subjects do you like?
- 2) Which subjects do you find difficult?

Introductory questions (15 minutes)

- 3) How do you feel about officer education in general?
- 4) How do you feel about educational methods in general?

Transition questions (15 minutes)

- 5) How would you describe your experiences with your officer education?
- 6) How would you describe your experiences with the educational methods of your officer education?

Key questions (45 minutes)

- 7) How do you experience the way you become focused at the beginning of a class?

Prompts: - Attention.

- Learning objectives.
- Authentic problems.

Points of attention from the survey

* *Opinions vary widely: When a class starts, the teacher has to get my attention first.*

- 8) How do you experience the way you are prepared to learn?

Prompts: - Prior knowledge/skills/experiences.

- Initial skills/ideas.

Points of attention from the survey

* *Not important: Before I learn anything, the other cadets and I should discuss what we already know and what we are already able to.*

- 9) How do you experience the way the content is presented to you?

Prompts: - Showing content.

- Comparing content with initial skills/ideas.
- Complementing skills/ideas by experimenting and studying.

- 10) How do you experience practicing the newly learned skills and knowledge?

Prompts: - Guidance.

- Practice of skills/trying out solutions.
- Feedback.

Points of attention from the survey

* *Not important / Opinions vary widely: The teacher should guide me when I learn.*

* *Important: I want to get feedback when I practice and try out solutions.*

11) How do you experience the transfer of the newly learned skills and knowledge from the educational setting to the real world?

Prompts: - Performance of skills/solving problems in authentic environments.

- Assessment of performance/problem solving.

- Reflection on learning process and outcomes in relation to the learning objectives.

Points of attention from the survey

* Not important: *Something I have learned needs to be assessed.*

* *In the top two of important things / In the top two of most valued things / In the top two of areas for improvement: The clear relationship between officer education and professional practice (Theory applied to practice, realistic / authentic education, preparation for professional practice, current affairs, field trips, emphasis on missions, relevance).*

12) How do you feel about the educational methods of your officer education?

Points of attention from the survey

* *In the top two of important things / In the top two of areas for improvement: Educational methods (Variation, diversity, effectiveness, efficiency, interaction, active learning, guidance, not too often and not too long lectures).*

13) How do you feel about the teachers (i.e. military trainers and academic educators) of your officer education?

Points of attention from the survey

* *In the top two of most valued things: Teachers (Good, accessible, passionate, committed, open attitude, interaction, military, experienced, close contact).*

Ending questions (5 minutes)

14) Is this summary of the discussion complete and correct?

15) Is there anything we should have talked about, but didn't?