

NATO Second Foreign Language Learning Effectiveness and Learning Motivation

Vladan HOLCNER^{1*}, Jiří DVOŘÁK¹, Jiří VÁPENÍK¹, Jiří NEUBAUER²

¹Language Centre, University of Defence, Address: Kounicova 65, 66210, Brno, Czech Rep.

²Department of Quantitative Methods, Faculty of Military Leadership, University of Defence, Address: Kounicova 65, 66210, Brno, Czech Rep.

Correspondence: *vladan.holcner@unob.cz

Abstract

Language proficiency is a key prerequisite for interoperability within NATO armed forces, making foreign language education an essential component of professional military training. This paper examines learning motivation and learning effectiveness among Czech Armed Forces personnel attending English language courses aligned with NATO STANAG 6001. The research is based on a questionnaire survey of 320 learners conducted between 2023 and 2025, combined with their examination results. The study analyses differences in motivation and learning effectiveness with respect to proficiency level, gender, and age. The findings indicate that learning effectiveness is not directly dependent on course level, motivation structures are similar across genders, and the age significantly influences learning outcomes.

KEY WORDS: L2 learning, motivational factor, intrinsic motivation, extrinsic motivation, effectiveness

Citation: Holcner, V.; Dvořák, J.; Vápeník, J.; Neubauer, J. NATO Second Foreign Learning Effectiveness and Learning Motivation. In Proceedings of the Challenges to National Defence in Contemporary Geopolitical Situation, Brno, Czech Republic, 7-10 September 2026. ISSN 2538-8959, <https://doi.org/10.47459/cndcgs.2026.118>

1. Introduction

The capabilities of armed forces personnel represent both an integral component and a prerequisite for interoperability, which is regarded as a critical feature of any military alliance. Therefore, language education is a vital component of professional military education in modern armed forces. The aim of this paper is to examine motivation and success of learners attending English language courses in the Czech Armed Forces. Motivation can be viewed as an important factor influencing learning success.

Motivation is one of the driving forces that propels individuals to achieve set goals and is therefore a key factor influencing the extent to which a student can learn a foreign language. Other factors that affect foreign language learning include age, gender, culture, identity, variables related to students and their interests, as well as teacher behavior and methodology, curriculum design, informal interaction with students, the nature of assignments, and even the classroom environment. [1]

Dörnyei introduced the L2 Motivational Self System. Within this system, the concept of the Ideal L2 Self was introduced, which represents a learners' internal image of themselves as a competent speaker of the second language. [2] According to Judit Kormos and Kata Csizér, the Ideal L2 Self plays a lesser role in younger students, as they allow themselves to be shaped by the influence of their teachers and classmates, while older people learning L2 already have a much more firmly established Ideal L2 Self. [3]

In addition, motivation to learn L2 is often related to socio-psychological factors. [3] These include personal contact with native speakers, which can play an important role in motivating individuals to learn L2. [4] Motivation and effectiveness of L2 learning can be also influenced by the initial level of proficiency in given language, i.e. by the quality of previous education and related learning strategies and attitudes. According to Clement, motivation and talent are the most important determinants for successful L2 acquisition. [5]

Motivation can be divided in several ways. One option is to divide motivation into intrinsic and extrinsic, as proposed by Ryan and Deci. Extrinsic motivation refers to learning driven by external rewards. [6] In a military environment, this could be a promotion or financial reward. In spite of the fact that military environment is characterized

by rigid, highly hierarchical, and often bureaucratic management styles that rely on top-down motivational tools, it cannot be unequivocally stated that military personnel are motivated to study foreign languages primarily by extrinsic factors. [7] According to Vallerand, intrinsic motivation can be divided into several categories: motivation to acquire new knowledge, motivation to accomplish a goal or task, and motivation based on the enjoyment of the activity itself (e.g., fun or excitement) [8, 9]. MacIntyre et al. (2003) investigated the relationship between motivation and willingness to communicate. Their study found that among individuals who participated in intensive language programs, there was a stronger correlation between motivation and willingness to communicate in L2 than among individuals who did not participate in intensive language programs [10].

It should be admitted that various motivational factors tend to function concurrently, collectively influencing learners' choices and patterns of behavior. Motivational processes are often characterized by complexity and the interaction of overlapping influences. Different types of motivation should not be labelled as either positive or negative, as individuals may, for example, internalize externally driven motivations, perceiving imposed requirements not merely as obligations but as valuable opportunities. Although recent investigations into motivation have moved beyond simple binary frameworks, incorporating more dynamic and context-sensitive perspectives, the outcomes of the dichotomous methodology employed in this research are much easier to analyze.

2. Research Methodology

The research presented is based on the results of a questionnaire survey, consisting of 17 items, designed to map the motivational structure of 320 learners, who are Czech Armed Forces personnel, learning a second foreign language within English language courses organized by the Czech University of Defence Language Centre. The survey was conducted between 2023 and 2025. The respondents consisted of 49 women and 271 men. The lower representation of women in the survey reflects the representation of women in the Czech Armed Forces (app. 15% in 2025). [11] The sample represents more than 80% of all learners attending English language courses concluded with examination in accordance with NATO STANAG 6001 within the Czech Armed Forces. [12] Participants completed the questionnaire during the initial part of their language courses (lasting two to five months based on the level of the course) i.e. still before their motivation was influenced by the teaching process during the course and of course, before they attended exams according to STANAG 6001. Therefore, respondents were not aware of their continuous or results when providing their views. Using a unique identification system of individual courses and learners, responses were matched with results achieved by individual learners at their exams.

Within the research, the following four hypotheses were formulated and tested:

- H1: The learning effectiveness of more advanced learners is lower than learning effectiveness of beginners.
- H2: There is no difference in L2 learning motivation perception between men and women.
- H3: There is no difference in L2 learning effectiveness between men and women.
- H4: There is no difference in L2 learning effectiveness for different age groups of learners.

Within the survey, aimed at the verification or rejection of these hypotheses, learners indicated the significance of individual motivational factors as very high, high, moderate, low, or negligible. It enables the ranking of the relative significance of individual factors of motivation to learn a second foreign language. It also supports Gardner's theory (2010) that strength of motivation is more important than its type. [13] In addition, the survey results make it possible to identify learners' perceptions of these motivational factors as either intrinsic or extrinsic. Respondents indicated their perception of the relative significance of each of the 12 motivational factors as very high, high, medium, low and negligible. In addition, each of these motivational factors classified by respondents as either intrinsic ("I want to"), extrinsic ("I have to") or both intrinsic and extrinsic at the same time ("I have to but also want to"). Additional five statements were included in the questionnaire, along with the respondents' levels of agreement or disagreement with these statements (certainly agree, rather agree, neither agree nor disagree, rather disagree, certainly disagree) in order to confirm and supplement respondents' declared attitudes

Data gathered within the survey and coupled with results of the NATO STANAG 6001 examination were statistically processed using R Software. The data obtained from the questionnaire survey were analyzed using descriptive statistical methods. Statistical analysis primarily employed nonparametric methods, such as the Wilcoxon test, the Kruskal-Wallis test, and multiple comparison methods (Dunn's or Nemenyi's nonparametric all-pairs comparison test); statistical relationships were assessed using Spearman's and Kendall's correlation coefficients, see for example [14]. All statistical tests were conducted at a significance level of 0.05.

3. Research Results and Discussion

The research included 118 beginners – learners in level 1 courses (36.9%), 120 learners in intermediate-level (level 2) courses (37.5%) and 82 learners in advanced (level 3) courses (25.6%). Majority of the learners involved in the research were men (84.7%), women represented just 15.3% of the learners. As already mentioned, this fact corresponds with gender structure of the Czech Forces. [11] On the other hand, it represents certain limitation of the validity of our analyses results, mainly due to the low number of female respondents.

The analysis indicates that learning effectiveness is not directly related to proficiency level. However, as Figure 1 shows, learners in courses on level 2 (intermediate) have higher success rate at standardized exams (86.6% on average) than learners in courses on level 1 (beginners) (on average 74.2%) and level 3 (advanced) (on average 76.2%). Based on the Kruskal-Wallis test, it can be concluded that the success rates across the different exam levels are not comparable (p -value = 0.032). Using multiple comparison methods, we can see a difference only between levels 2 and 3.

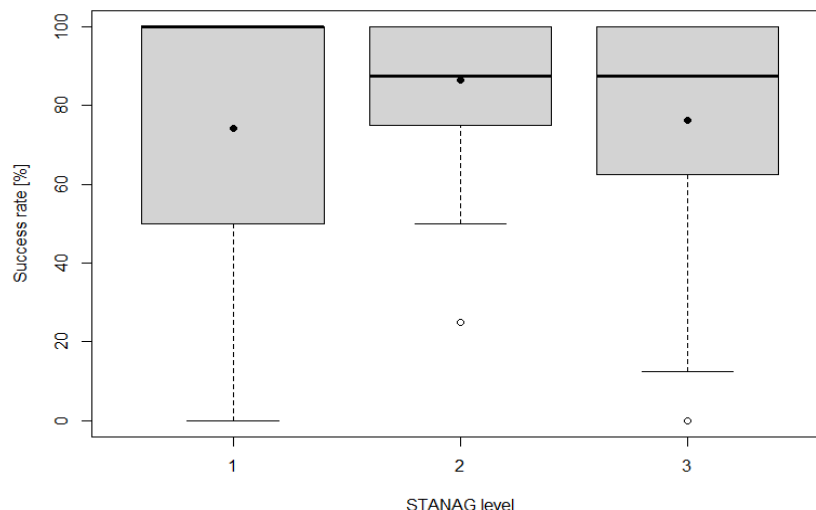


Fig. 1. Learners' success rate in individual levels of English language courses (Note: The median is marked with a bold line, and the mean with a black dot). (Source: Own.)

These findings do not support hypothesis H1. The learning effectiveness of more advanced learners is lower only if we compare intermediate level learners (level 2) with learners in advanced courses (level 3). Potential explanation of the fact that beginners have the lowest level of learning effectiveness out of the three levels examined can be connected with the relative short duration of courses for beginners (2 months only compared to 4-5 months for intermediate courses). In addition, many of the learners in level 1 courses are complete beginners with zero previous exposure to English language. Major part of these learners come to language courses after rather long interruption after previous education and therefore, have not developed the habits and strategies needed to approach their own learning effectively.

From a gender perspective and L2 learning motivation, only minor differences were observed between men and women. Men perceive as the strongest factor of their motivation to learn second language the factor "interest to learn something new", followed with factors "development of own career, e.g. promotion, new appointment" and the need to "communicate with foreigners". Women identified as the most important factors for learning a second language also the factor "interest to learn something new", followed with factors "requirement of the superior" and "formal requirement connected with given appointment/job". Whereas the three most important motivational factors of men were viewed as intrinsic, two out of the three most important motivational factors of women were indicated as extrinsic. Despite differences in ranking of the most important factors between men and women, still the difference in relative weights remains insignificant. The Kendal correlation coefficient of the ranking by men and women is 0.63 (p -value 0.005) and Spearman correlation coefficient 0.78 (p -value 0.003), both are statistically significant. We can conclude that minor differences include men perceiving higher need to directly communicate with foreigners whereas women feel more urgent the need to fulfill formal language requirements prescribed for their position. For there is no statistically significant difference in L2 learning motivation perception between men and women, we can consider the H2 hypothesis confirmed.

The results analyzed show a rather significant difference between men and women with regards to their learning effectiveness expressed as success rate at examination in accordance with NATO STANAG 6001 (being measured as percentage of proficiency levels achieved in individual language skills – reading, speaking, listening and writing). On average, English language learners' efficiency is 79.3%. When we focus only on women, we can see success rate of 88.5% whereas men achieve 77.6% only (see Figure 2). The limited number of female learners did not allow for a more detailed analysis of potential differences among learners at individual proficiency levels (beginner, intermediate, and advanced). The median success rate for all learners is 87.5%. For male learners, it is also 87.5%, whereas for female learners, it is 100%. Therefore, it can be concluded that these two groups are not comparable (p -value 0.021) and that women achieve better results than men. Therefore, the H3 hypothesis "There is no statistically significant difference in L2 learning effectiveness between men and women" can be considered rejected.

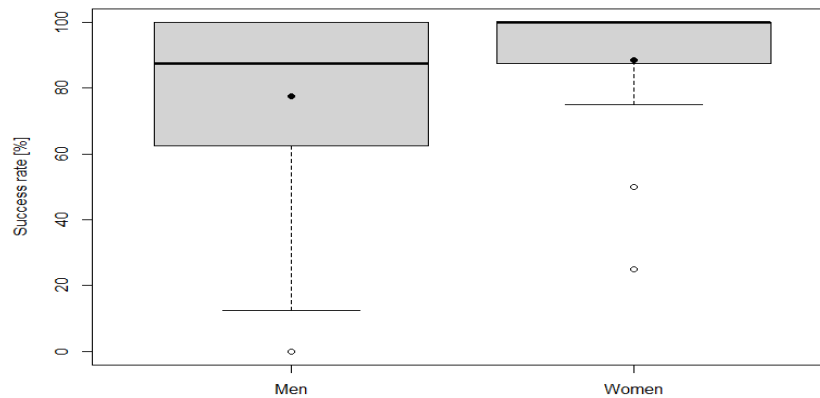


Fig. 2. Difference in male and female learners' success rate (Note: The median is marked with a bold line, and the mean with a black dot). (Source: Own.)

With regard to age, it was found that age influences the success rate in L2 learning. The average age of learners included in the research was 47 years. [12] Therefore, when analyzing the results, two different groups of learners were distinguished: younger learners (under 40 years of age) and older learners (40 years and more). These two groups of learners can be viewed as comparable in terms of the number of learners included (179 learners were younger than 40 years and 138 learners were 40 or older). Younger learners were more effective in L2 learning compared to older learners. Average success rate of younger learners at exams in accordance with STANAG 6001 was 86.1% while the average success rate of older learners was 70.5% (see Figure 3). So, we can conclude that there is a statistically significant difference in L2 learning effectiveness for different age groups of learners ($p_{\text{value}} < 0.001$) and therefore, consider the H4 hypothesis rejected.

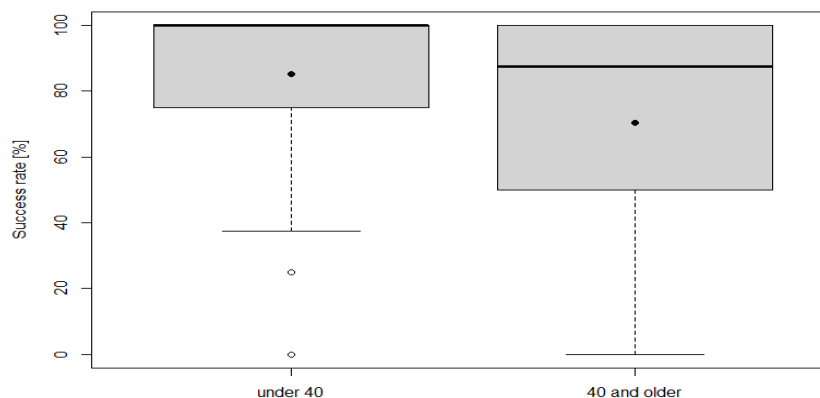


Fig. 3. Difference in male and female learners' success rate (Note: The median is marked with a bold line, and the mean with a black dot). (Source: Own.)

4. Conclusions

This paper examined motivation and learning effectiveness among Czech Armed Forces personnel participating in English language courses conducted in accordance with NATO STANAG 6001. Considering the critical role of language proficiency for interoperability within NATO, understanding the factors that influence successful second language acquisition in a military environment remains highly relevant.

The results indicate that learning effectiveness is not linearly dependent on the level of language proficiency. While intermediate-level learners achieved the highest overall success rate, beginners also demonstrated relatively high effectiveness, which can largely be explained by prior informal exposure to English and the lower demands of the entry-level examination. Conversely, slightly lower results among advanced learners appear to be connected with the significantly higher difficulty of the level-3 examination and with learners' previous interruptions in systematic language education. Consequently, the assumption that learning effectiveness decreases with higher proficiency levels was not confirmed.

From the perspective of motivation, the study revealed only marginal differences between male and female learners. Although men tended to prioritize intrinsically oriented motivational factors and women reported a stronger influence of extrinsic requirements, the overall structure and perceived importance of motivational factors were statistically comparable. These findings confirm that motivation to learn a second language in the military environment is multifaceted and shaped by both internal interest and external professional demands, regardless of gender. Despite women achieving higher average examination results, the limited size of the female sample suggests that this finding should be interpreted cautiously.

Age proved to be a significant factor influencing learning effectiveness. Younger learners achieved markedly higher success rates than older participants, a result consistent with previous research highlighting age-related differences in cognitive flexibility, learning strategies, and exposure to language input. This outcome underlines the need for tailored instructional approaches and targeted motivational support for older learners in military language training.

Overall, the findings confirm that motivation plays an important role in second language learning effectiveness in the armed forces, but its impact is closely intertwined with learner characteristics such as age and prior educational experience. For military language education practice, the results suggest that the system of language education within the Ministry of Defence should balance extrinsic incentives linked to career development with measures supporting intrinsic motivation, meaningful communication, and age-sensitive pedagogy. Such an approach may contribute to increased effectiveness of language education and, ultimately, to enhanced interoperability within NATO forces.

Acknowledgements. This research was conducted within the institutional research support and as a part of the Long Term Development Scheme of the University of Defence Language Centre “Efficiency of Language Education of the Ministry of Defence of the Czech Republic II (DZRO Language II).

References

1. **Ramírez, N. O.** The influence of motivation in the foreign language learning process. *Fòrum de Recerca*, 2014, 19, p. 695-707.
2. **Dörnyei, Z.** The L2 motivational self-system. In *Motivation, language identity and the L2 self*. Bristol: Multilingual Matters, 2009, p. 9-42.
3. **Kormos, J., Csizér, K.** Age-related differences in the motivation of learning English as a foreign language: attitudes, selves, and motivated learning behavior. *Language Learning*, 2008, 58 (2), p. 327-355.
4. **Rubinfeld, S., Clément, R., Lussier, D., Lebrun, M., Auger, R.** Second language learning and cultural representations: beyond competence and identity. *Language Learning*, 2006, 56 (4), p. 609-632.
5. **Clément, R., Major, L., Gardner, R.C., Smythe, P. C.** Attitudes and motivation in second language acquisition: An investigation of Ontario francophones. *Working Papers on Bilingualism*, 1977, 12, p. 1-20.
6. **Deci, E. L., Ryan, R. M.** *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Springer, 1985. 372 p.
7. **Holcner, V., Dvořák, J., Vápeník, J.** Motivation for second language learning in the Czech Armed Forces. *Academic Journal of Modern Philology*, 2023, 19, p. 117-128.
8. **Vallerand, R. J.** Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation. *Advances in Experimental Social Psychology*. 1997, 29, p. 271-360.
9. **Čechová, I., Neubauer, J., Sedláčik, M.** Tracking the university student success: Statistical quality assessment. *Journal on Efficiency and Responsibility in Education and Science*, 2019, 12 (1), p. 12-25.
10. **MacIntyre, P., Baker, S., Clément, R., Donovan, L.** Talking in order to learn: Willingness to communicate and intensive language programs. *Canadian Modern Language Review*, 2003, 59 (4), p. 589-607.
11. **Ministry of Defence of the Czech Republic.** Quantitative gender analysis (2023). Prague: Ministry of Defence of the Czech Republic, 2023.
12. **Language Centre.** Výroční zpráva o stavu zajišťování kvality činností Centra jazykového vzdělávání Univerzity obrany za rok 2024. Brno: University of Defence, 2024.
13. **Gardner, R. C.** *Motivation and second language acquisition: The socio-educational model*. New York: Peter Lang Publishing, 2010, 244 p.
14. **Hollander M., Wolfe, D.A., Chicken E.** *Nonparametric statistical methods*. Third edition. Wiley Series in Probability and Statistics. 2014, New Jersey: John Wiley & Sons, 2014, 848 p.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of CNDCGS 2026 and/or the editor(s). CNDCGS 2026 and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.