The Relationship Between Employee Development and Organisational Competitiveness

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Abstract

Background: Employee education and development relate to employees' acquisition and application of knowledge and skills, as well as work-related perceptions, motivation, retention, and organisational competitiveness. **Objectives:** This study examines associations between employee education and development opportunities, perceived education-related work improvement, motivation- and retention-related perceptions, and perceived organisational competitiveness. **Methods/Approach:** A quantitative cross-sectional survey of 153 respondents in Croatia used 12 researcher-developed statements organised into four domains. The study used internal consistency, Pearson correlations, multiple linear regression, bootstrap checks, and sensitivity analysis. **Results:** Employee education and development opportunities were positively associated with perceived organisational competitiveness, work improvement, and motivation- and retention-related perceptions. In the integrated model, all three predictors were positive and significant, explaining more than half of the variance. **Conclusions:** More favourable perceptions of employee education and development coincide with more favourable work-related and organisational assessments. Because the study is cross-sectional and self-reported, the findings indicate associations rather than causal effects.

Keywords: employee education and development; work-related outcomes; motivation; retention; perceived organisational competitiveness; Croatia

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Introduction

Technological change, labour-market pressures, and competitive demands have increased the need for employees to continuously update and apply their knowledge and skills. Employee education and development can support this process, but its value depends on whether development opportunities are relevant to employees' work, supported by the organisation, and applicable in everyday practice (Aguinis & Kraiger, 2009; Dachner et al., 2021; Chung et al., 2022; Mehner et al., 2025; Yaqub et al., 2025; Kim et al., 2026).

Research has linked employee training and development with work performance, engagement, motivation, organisational commitment, retention, and organisational outcomes. HRM research also stresses the importance of distinguishing between HR practices, employee responses, and organisational outcomes (Guest, 2025; Suhail et al., 2025). This distinction is relevant to the present study because the survey captures several related perceptions rather than a single general outcome.

Employee education and development have also been examined in Croatian organisations (Pološki Vokić & Grizelj, 2007). Against this background, the present study examines four related domains: employee education and development opportunities, perceived education-related work improvement, motivation- and retention-related perceptions, and perceived organisational competitiveness. The interpretation of these domains draws on broader international research on training, human capital, employee capabilities, and organisational outcomes (Hosen et al., 2024; Maley, 2024; Osorio-Londoño et al., 2025).

Perceived organisational competitiveness is treated here as a respondent-level assessment rather than as an objective measure of organisational market or financial performance. In this study, it refers to perceptions that education supports organisational adaptation to change and that employee knowledge and skills are an important source of competitive advantage. This distinction is important because the study does not include objective indicators such as profitability, productivity, market share, or firm growth. The findings therefore concern perceived organisational competitiveness and should not be interpreted as direct evidence of changes in objectively measured organisational performance.

Although these research streams provide substantial evidence that training and development are associated with work performance, employee responses, and organisational outcomes, the evidence is commonly distributed across separate strands of research. Strategic HRM studies distinguish HR practices, employee resources and responses, and more distal organisational outcomes, while training research often focuses on transfer, performance, engagement, or retention as separate endpoints (Guest, 2025; Suhail et al., 2025; Garavan et al., 2021). Research concerned with competitiveness, in turn, frequently approaches the issue through human capital, firm performance, innovation, or competitive strategy rather than through employees' perceptions of organisational adaptability and the competitive value of knowledge and skills (Crook et al., 2011; Delery & Roumpi, 2017; Osorio-Londoño et al., 2025). This fragmentation leaves room for an integrated examination of how development opportunities, perceived work improvement, motivation- and retention-related perceptions, and perceived organisational competitiveness are related within the same empirical framework.

This study therefore examines the associations between employee education and development opportunities, perceived education-related work improvement, motivation- and retention-related perceptions, and perceived organisational competitiveness among respondents from different economic activities and work

areas. More specifically, the study examines whether more favourable perceptions of employee education and development opportunities are associated with (i) higher perceived organisational competitiveness, (ii) more favourable assessments of education-related work improvement, and (iii) more favourable motivation- and retention-related perceptions. An integrated model then examines whether development opportunities, perceived work improvement, and motivation- and retention-related perceptions retain separate associations with perceived organisational competitiveness when considered simultaneously.

The study contributes to this literature in three related ways. First, it keeps development opportunities conceptually separate from human capital, employee-level work-related outcomes, and organisational competitiveness rather than treating these concepts as interchangeable. Second, it combines the three hypothesised bivariate relationships with an integrated analysis that assesses whether the three predictor domains contain distinct information in relation to perceived organisational competitiveness. Third, it adopts a deliberately bounded respondent-level view of competitiveness, focusing on perceived organisational adaptability and the competitive relevance of employee knowledge and skills rather than objective firm performance. Given the cross-sectional survey design, these contributions are associational and do not imply causal ordering among the domains.

Literature Review and Hypothesis Development

Four concepts need to be distinguished in the present framework. Employee education and development refers to organisational opportunities and practices that enable employees to acquire, update, and apply knowledge and skills. Human capital refers to the knowledge, skills, abilities, and related capabilities embodied in employees and, at the organisational level, to resources that emerge when those capabilities are combined and deployed in support of organisational objectives (Ployhart & Moliterno, 2011; Zhang et al., 2023). Work-related outcomes are more proximal employee-level consequences or assessments associated with development; in this study, they include perceived improvement in skills, efficiency, and work quality, together with motivation- and retention-related perceptions. Organisational competitiveness is a more distal organisational assessment and, in this study, specifically denotes respondents' perceptions of organisational adaptability and of employee knowledge and skills as a source of competitive advantage.

These concepts are related but not synonymous. Providing development opportunities does not in itself constitute human capital, just as human capital should not be equated with employee responses or organisational outcomes. Strategic HRM research explicitly separates HR practices from employee resources and responses and from more distal organisational outcomes (Jiang et al., 2012; Guest, 2025). Development can contribute to human capital when learning is relevant, supported, transferred, and applied, while human capital and employee responses may in turn be associated with organisational outcomes. Evidence at the organisational level accordingly links training and skill-enhancing HR practices with performance, although the magnitude and form of these relationships vary across organisational and institutional contexts (Combs et al., 2006; Subramony, 2009; Garavan et al., 2021; Zhai et al., 2025; Han et al., 2026). In this cross-sectional study, this sequence serves as a conceptual framework rather than a causal process to be tested.

Employee Education and Development Opportunities and Perceived Organisational Competitiveness

The resource-based and human-capital perspectives help explain why employee development may be related to organisational competitiveness. Knowledge, skills, and capabilities can become strategically relevant when they are valuable in the work context and when organisations develop and deploy them in ways that are difficult to reproduce. Research on human capital resources emphasises that strategically valuable organisational capabilities originate in employees' knowledge, skills, abilities, and other characteristics but emerge through organisational processes rather than through individual attributes alone (Ployhart & Moliterno, 2011; Delery & Roumpi, 2017; Zhang et al., 2023). This argument also aligns with research identifying human resources, employee skills, competencies, and motivation as factors associated with organisational competitiveness (Salkynbayeva et al., 2024).

Development is one mechanism through which organisations can build and renew such human capital. Hatch and Dyer (2004) show that firm-specific human capital development through training can improve organisational learning and performance. A meta-analysis by Crook et al. (2011) likewise reports a positive relationship between human capital and firm performance, particularly when human capital is firm-specific. More broadly, meta-analytic evidence indicates positive associations between training and organisational performance (Tharenou et al., 2007; Garavan et al., 2021), while skill-enhancing HR practices contribute to organisational outcomes partly through human capital and employee responses (Jiang et al., 2012).

Employee development may also support competitiveness indirectly through learning, adaptation, and innovation. Training and development investment has been linked with organisational learning and innovative performance (Sung & Choi, 2014), while enterprise-level studies associate employee training with innovation activities and product innovation (Børing, 2017; Caloghirou et al., 2018). Recent evidence further indicates that training and development can strengthen the performance contribution of broader high-performance and high-investment HR systems (Zhai et al., 2025; Han et al., 2026). Training has consequently been discussed not merely as an operational HR activity but as a potential source of competitive advantage when aligned with organisational strategy (Muñoz Castellanos & Salinero Martín, 2011; Osorio-Londoño et al., 2025).

In the present study, however, organisational competitiveness is not measured through market share, profitability, productivity, innovation output, or other objective organisational indicators. Instead, it reflects respondents' assessments that education supports organisational adaptation to change and that employee knowledge and skills are an important source of competitive advantage. The theoretical argument therefore supports an expected association between perceived development opportunities and perceived organisational competitiveness, rather than a claim that development causes objectively measured competitive performance.

H1. Employee education and development opportunities are positively associated with perceived organisational competitiveness.

Employee Education and Development Opportunities and Perceived Education-Related Work Improvement

A central purpose of employee development is to enable employees to acquire knowledge and skills that can be transferred to their work. Training-transfer research shows that participation alone is insufficient: the usefulness of development depends on content relevance, support for transfer, and opportunities to apply acquired

capabilities in practice (Blume et al., 2010; Mehner et al., 2025; Yaqub et al., 2025). These conditions closely align with the present study's conceptualisation of employee education and development opportunities, including job relevance, organisational encouragement, and alignment with job requirements.

The expected work-related benefits are also consistent with evidence linking development practices to employee competence and performance. Hosen et al. (2024) associate training and development and career development with work performance, while Tafese Keltu (2024) reports a positive relationship between human resource development practices and employee performance. Choi and Yoon (2015) further show that employee competence can serve as a pathway linking training investment to organisational outcomes. At the organisational level, training investment has also been associated with productivity (Schwarz et al., 2026), reinforcing the broader proposition that development can improve employees' capacity to perform work effectively.

The outcome examined here is deliberately narrower than objective performance. Perceived education-related work improvement captures respondents' assessments that education improves work skills, enables faster and more efficient task performance, and increases work quality. These perceptions concern the experienced applicability and usefulness of development rather than measured changes in productivity before and after training. Accordingly, the hypothesis concerns whether favourable development opportunities coincide with favourable assessments of education-related work improvement.

H2. Employee education and development opportunities are positively associated with perceived education-related work improvement.

Employee Education and Development Opportunities and Motivation- and Retention-Related Perceptions

Development opportunities may also shape how employees evaluate their relationship with the organisation. Access to meaningful development can signal organisational investment in employees, provide opportunities for professional growth, and strengthen the perceived value of remaining with the organisation. Earlier evidence shows that perceived training opportunities are related to intrinsic motivation and turnover intention (Dysvik & Kuvaas, 2008), while participation in on-the-job development has been associated with stronger organisational commitment and lower intention to leave (Benson, 2006). Broader HRM research also links development-related practices with engagement and other positive employee responses (Saks, 2022; Pham & Nguyen, 2024).

Recent evidence reinforces the relevance of development for retention. A systematic review by Shiri et al. (2023) found that continuing professional training and development were generally associated with greater intention to remain in current employment and lower turnover-related outcomes, although most included studies focused on the health sector. At the firm level, Oh et al. (2025) found that training investment was associated with lower voluntary turnover through employee commitment. Talent development practices have similarly been linked to retention intention (Karim et al., 2025), while a systematic review links talent management and engagement to turnover intention (Sinisterra et al., 2024).

These findings do not imply that motivation, willingness to remain, and organisational loyalty are interchangeable. They represent related but distinct employee responses. The present study therefore uses them as a broader, conceptually defined group of motivation- and retention-related perceptions rather

than as a single validated psychological construct. Consequently, the hypothesis concerns their shared positive association with development opportunities.

H3. Employee education and development opportunities are positively associated with motivation- and retention-related perceptions.

Integrated Examination of Perceived Organisational Competitiveness

H1-H3 examine the bivariate associations between employee education and development opportunities and each of the three other domains. However, the literature suggests that work-related capability and employee responses can coexist as distinct pathways through which HR practices relate to organisational outcomes. Meta-analytic strategic HRM research distinguishes skill-enhancing practices and human capital from motivation-related employee responses (Jiang et al., 2012), while training research similarly identifies employee competence and commitment as distinct mechanisms connecting development investment with organisational outcomes (Choi & Yoon, 2015).

For this reason, an additional regression model examines employee education and development opportunities (A), perceived education-related work improvement (B), and motivation- and retention-related perceptions (D) simultaneously in relation to perceived organisational competitiveness (C). The purpose is not to test mediation or causal pathways, which the cross-sectional design cannot establish, but to determine whether these conceptually distinct domains retain separate statistical associations with perceived organisational competitiveness when considered together.

Methodology

Research Design and Sample

The study employed a quantitative cross-sectional research design based on primary survey data. The survey was conducted during May 2026 using an anonymous online questionnaire created in Google Forms. The questionnaire was distributed through online communication channels and social networks. Participation was voluntary, and respondents completed the questionnaire independently. No directly identifying personal data were collected.

The analysis included 153 completed responses. Respondents represented different age groups, work experience levels, economic activities, and work areas. The sample included respondents associated with service activities, trade, manufacturing, education, health care, public administration, and other activities, as well as respondents from different functional work areas. This diversity enabled the study to examine perceptions across different organisational and occupational settings rather than within a single organisation or industry.

The sample was obtained through online non-probability sampling. Consequently, the findings should not be interpreted as population-representative estimates for employees or organisations in Croatia.

Instrument and Measurement

The questionnaire consisted of three sections. The first collected background information, including age, work experience, economic activity, work area, and employment status. The second included questions concerning the organisation of employee education, frequency of participation in education, and opportunities for professional development. The third section contained 12 evaluative statements

addressing employee education and development, work-related improvement, organisational competitiveness, and motivation and retention.

Respondents recorded their responses to the evaluative statements on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The 12 evaluative statements were researcher-developed and organised into four conceptually defined domains.

Employee education and development opportunities (A) were measured using three items addressing: (i) the availability of education relevant to respondents' work, (ii) organisational encouragement of continuous professional development, and (iii) the alignment of education with job requirements.

Perceived education-related work improvement (B) was measured using three items assessing whether education improves work skills, enables faster and more efficient task performance, and increases work quality. This indicator therefore represents respondents' perceived education-related improvement in work rather than objectively measured labour productivity or individual performance.

Motivation- and retention-related perceptions (D) were represented by three items addressing motivation to work, willingness to remain with the organisation, and organisational loyalty in relation to development opportunities. These three aspects are not treated as interchangeable concepts but as a broader, conceptually defined group of responses associated with employee education and development opportunities.

For each of these three domains, the composite indicator was calculated as the mean of its corresponding three items.

For the primary analysis, perceived organisational competitiveness (C) was calculated using two items: the statement that employee education helps the organisation adapt more easily to change and the statement that employee knowledge and skills constitute an important source of competitive advantage.

The questionnaire originally included a third competitiveness item: "Investment in employee education and development contributes to organisational competitiveness". This item was not included in the primary outcome because it explicitly incorporates the education/development-competitiveness relationship that the study seeks to examine. Including it in the dependent variable could therefore create conceptual overlap between the predictor and outcome. The original three-item competitiveness indicator was nevertheless retained for a sensitivity analysis, allowing the robustness of the findings to be assessed using the questionnaire's original grouping.

Higher composite scores indicate more favourable perceptions of the respective domain.

Analytical Procedure

The statistical analysis was conducted in several stages.

First, the sample characteristics were summarised using frequencies and percentages, while means and standard deviations were calculated for the four composite indicators.

Second, the internal consistency of the composite indicators was assessed using Cronbach's alpha. Because the primary indicator of perceived organisational competitiveness consisted of two items, the correlation between the two items was additionally examined as an indication of their consistency.

Third, Pearson correlation coefficients were used to examine the three hypothesised associations. H1 examined the association between employee education and development opportunities (A) and perceived organisational competitiveness (C). H2

examined the association between employee education and development opportunities (A) and perceived education-related work improvement (B). H3 examined the association between employee education and development opportunities (A) and motivation- and retention-related perceptions (D).

The hypotheses were therefore evaluated as associational relationships, consistent with the cross-sectional design of the study.

In addition to the hypothesis tests, the following multiple linear regression model was estimated:

$$C_i = \beta_0 + \beta_1 A_i + \beta_2 B_i + \beta_3 D_i + \varepsilon_i \qquad (1)$$

In equation (1), C_i denotes perceived organisational competitiveness for respondent i; A_i, employee education and development opportunities; B_i, perceived education-related work improvement; and D_i, motivation- and retention-related perceptions. β_0 denotes the intercept, β_1- β_3 the regression coefficients, and ε_i the error term.

The model examined whether employee education and development opportunities, perceived education-related work improvement, and motivation- and retention-related perceptions retained separate associations with perceived organisational competitiveness when considered simultaneously.

Because the regression analysis aimed to estimate associations rather than causal effects, we interpreted the regression coefficients accordingly. Inference for the regression coefficients used HC3 heteroskedasticity-consistent standard errors. We examined variance inflation factors (VIFs) to assess multicollinearity among the predictors.

We also performed a bootstrap robustness check using 5,000 resamples and 95% percentile bootstrap confidence intervals for the regression coefficients. Finally, we re-estimated the integrated regression model using the questionnaire's original three-item perceived organisational competitiveness indicator. This sensitivity analysis assessed whether excluding the directly overlapping competitiveness item materially affected the substantive conclusions.

Results

Sample Profile

The analysis included all 153 respondents. The sample covered a broad range of age groups and work experience levels. The largest age group was 26-35 years (37.9%), while respondents with more than 20 years of work experience made up the largest work-experience group (32.0%). Respondents were associated with several economic activities, with services being the most frequently represented activity (37.9%), followed by trade (16.3%) and manufacturing (11.8%). Table 1 summarises the sample's main characteristics.

Table 1

Profile of the sample (N = 153)

Characteristic	Category	n	%
Age	Up to 25 years	14	9.2
	26-35 years	58	37.9
	36-45 years	33	21.6
	46-55 years	29	19
	56 years and above	19	12.4
Work experience	Up to one year	7	4.6

	1-5 years	35	22.9
	6-10 years	27	17.6
	11-20 years	35	22.9
	More than 20 years	49	32
Industry	Services	58	37.9
	Trade	25	16.3
	Manufacturing	18	11.8
	Education	16	10.5
	Public/state administration	13	8.5
	Health care	10	6.5
	Other activities	13	8.5

Source: Authors' work

Descriptive Statistics and Internal Consistency

Table 2 presents descriptive statistics and internal consistency estimates for the four composite indicators. Perceived organisational competitiveness showed the highest mean score (M = 4.098, SD = 0.962), followed by motivation- and retention-related perceptions (M = 3.828, SD = 0.947), perceived education-related work improvement (M = 3.691, SD = 0.954), and employee education and development opportunities (M = 3.651, SD = 1.168).

Internal consistency was satisfactory to high across the composite indicators. Cronbach's alpha was 0.927 for employee education and development opportunities, 0.935 for perceived education-related work improvement, 0.825 for perceived organisational competitiveness, and 0.886 for motivation- and retention-related perceptions. The two items forming the primary perceived organisational competitiveness indicator were correlated ($r = 0.704$, $p < 0.001$).

Table 2

Descriptive statistics and internal consistency of composite indicators

Indicator	Items	Mean	SD	Cronbach's α
Employee education and development opportunities (A)	3	3.651	1.168	0.927
Perceived education-related work improvement (B)	3	3.691	0.954	0.935
Perceived organisational competitiveness (C)	2	4.098	0.962	0.825
Motivation- and retention-related perceptions (D)	3	3.828	0.947	0.886

Source: Authors' work

Hypothesis Testing

All four composite indicators were positively correlated. Table 3 presents the complete correlation matrix, allowing evaluation of both the hypothesised relationships and the associations used in the subsequent integrated model.

Employee education and development opportunities were positively associated with perceived organisational competitiveness ($r = 0.455$, $p < 0.001$). Employee education and development opportunities were also positively associated with perceived education-related work improvement ($r = 0.420$, $p < 0.001$). Finally, employee education and development opportunities were positively associated with motivation- and retention-related perceptions ($r = 0.400$, $p < 0.001$).

Perceived education-related work improvement and motivation- and retention-related perceptions were also positively associated with perceived organisational competitiveness (r = 0.647 and r = 0.584, respectively; both p < 0.001).

Table 3
Correlations among composite indicators

Indicator	A	B	C	D
A - Employee education and development opportunities	1			
B - Perceived education-related work improvement	0.420***	1		
C - Perceived organisational competitiveness	0.455***	0.647***	1	
D - Motivation- and retention-related perceptions	0.400***	0.545***	0.584***	1

Note: Pearson correlation coefficients; N = 153. ***p < 0.001.
Source: Authors' calculations based on survey data.

Integrated Regression Model

A multiple linear regression analysis examined whether employee education and development opportunities, perceived education-related work improvement, and motivation- and retention-related perceptions retained separate associations with perceived organisational competitiveness when considered simultaneously.

The model explained 51.5% of the variance in perceived organisational competitiveness ($R^2 = 0.515$; adjusted $R^2 = 0.505$; conventional OLS $F(3,149) = 52.793$, $p < 0.001$). Inference for the individual regression coefficients used HC3 heteroskedasticity-consistent standard errors.

All three predictors retained positive and statistically significant associations with perceived organisational competitiveness. Employee education and development opportunities were positively associated with perceived organisational competitiveness after accounting for the other predictors (b = 0.133, HC3 SE = 0.056, p = 0.020). Perceived education-related work improvement was also positively associated with the outcome (b = 0.425, HC3 SE = 0.107, p < 0.001), as were motivation- and retention-related perceptions (b = 0.293, HC3 SE = 0.095, p = 0.002).

Table 4
Multiple regression model for perceived organisational competitiveness

Predictor	b	HC3 SE	t	p	95% CI for b
Constant	0.92	0.319	2.879	0.005	[0.289, 1.551]
Employee education and development opportunities (A)	0.133	0.056	2.358	0.020	[0.022, 0.245]
Perceived education-related work improvement (B)	0.425	0.107	3.969	<0.001	[0.214, 0.637]
Motivation- and retention-related perceptions (D)	0.293	0.095	3.083	0.002	[0.105, 0.481]

Note: Dependent variable: perceived organisational competitiveness (C); N = 153; b = unstandardised regression coefficient; HC3 SE = heteroskedasticity-consistent standard error; CI = confidence interval. Model statistics: $R^2 = 0.515$; adjusted $R^2 = 0.505$; $F(3,149) = 52.793$; $p < 0.001$.
Source: Authors' work

Variance inflation factors ranged from 1.28 to 1.53, indicating no problematic multicollinearity among the predictors. The bootstrap analysis based on 5,000

resamples also supported coefficient stability. The 95% percentile bootstrap confidence intervals remained above zero for employee education and development opportunities [0.035, 0.248], perceived education-related work improvement [0.232, 0.627], and motivation- and retention-related perceptions [0.104, 0.467]. We obtained similar results when we used the original three-item competitiveness indicator. The model explained 53.1% of the variance in the alternative outcome ($R^2 = 0.531$; adjusted $R^2 = 0.521$; $F(3,149) = 56.140$, $p < 0.001$). Employee education and development opportunities ($b = 0.122$, $p = 0.023$), perceived education-related work improvement ($b = 0.440$, $p < 0.001$), and motivation- and retention-related perceptions ($b = 0.292$, $p = 0.002$) all remained positively and statistically significantly associated with perceived organisational competitiveness.

The bivariate analyses therefore support H1, H2, and H3. The regression and sensitivity analyses additionally show that the associations with perceived organisational competitiveness remain when the domains are considered simultaneously and when the alternative competitiveness indicator is used.

Discussion

The findings show a coherent pattern across the three hypothesised relationships. Employee education and development opportunities were positively associated with perceived organisational competitiveness, perceived education-related work improvement, and motivation- and retention-related perceptions. The integrated model additionally showed that development opportunities, work improvement, and motivation- and retention-related perceptions each retained a positive association with perceived organisational competitiveness when considered simultaneously. Taken together, the results align with the view that employee development connects to several distinct layers of employee and organisational assessment rather than a single undifferentiated outcome.

Theoretical Implications

The positive association between employee education and development opportunities and perceived organisational competitiveness supports H1. From a human-capital perspective, this pattern is consistent with the argument that development helps organisations build and renew strategically relevant knowledge and capabilities (Hatch & Dyer, 2004; Crook et al., 2011; Ployhart & Moliterno, 2011; Delery & Roumpi, 2017). It also accords with meta-analytic evidence linking training and skill-enhancing HR practices with organisational performance (Jiang et al., 2012; Garavan et al., 2021) and with more recent findings that training and development can strengthen the performance contribution of broader HR systems (Zhai et al., 2025; Han et al., 2026).

The present result should nevertheless be interpreted at the level at which competitiveness was measured. Respondents who perceived greater availability of job-relevant education, stronger organisational encouragement of development, and better alignment between education and job requirements also tended to perceive stronger organisational adaptability and a greater competitive role for employee knowledge and skills. This is conceptually compatible with research connecting development with organisational learning and innovation (Sung & Choi, 2014; Børing, 2017; Caloghirou et al., 2018), but the study contains no objective measures of innovation, market position, profitability, productivity, or firm growth. H1 therefore supports a relationship between two sets of perceptions; it does not demonstrate that development produces competitive advantage in an objective or causal sense.

The positive association between employee education and development opportunities and perceived education-related work improvement supports H2. Respondents who evaluated development opportunities more favourably were more likely to report that education improves their skills, work efficiency, and work quality. This is consistent with training-transfer research, which emphasises that learning generates work-related benefits when content is relevant and employees have opportunities and support to apply it (Blume et al., 2010; Mehner et al., 2025; Yaqub et al., 2025). It is also consistent with evidence linking HR development and training with employee competence and work performance (Choi & Yoon, 2015; Hosen et al., 2024; Tafese Keltu, 2024).

H2 is important for interpreting the broader model because perceived work improvement represents a more proximal work-related assessment than perceived organisational competitiveness. The comparatively strong correlation between B and C ($r = 0.647$) indicates that respondents who perceived greater education-related improvement in their own work also tended to evaluate organisational competitiveness more favourably. This pattern is theoretically plausible because improved skills, efficiency, and work quality are mechanisms through which human capital can become useful to organisations. However, the present analysis does not establish that work improvement mediates the relationship between development opportunities and competitiveness, and the result should not be interpreted as a causal sequence.

The positive association between employee education and development opportunities and motivation- and retention-related perceptions supports H3. This finding is consistent with evidence that perceived training opportunities relate to motivation and turnover intention (Dysvik & Kuvaas, 2008), that development participation can strengthen commitment and reduce intention to leave (Benson, 2006), and that continuing professional development is generally associated with retention-related outcomes (Shiri et al., 2023). Recent longitudinal firm-level evidence also indicates that the relationship between training investment and lower voluntary turnover can operate through employee commitment (Oh et al., 2025).

At the same time, the H3 indicator requires careful interpretation. Motivation to work, willingness to remain, and organisational loyalty are related but distinct responses, and the present composite was not designed as a validated psychological scale. The positive relationship should therefore be understood as a broad pattern in employee responses associated with development opportunities. It supports the relevance of development to the employee experience, but it does not show that the same psychological mechanism underlies all three items.

The integrated regression model is particularly informative because the three predictor domains were positively related to one another, yet each remained statistically significant when the other two were considered simultaneously. The association between development opportunities and perceived organisational competitiveness was therefore not fully accounted for by respondents' assessments of work improvement or by their motivation- and retention-related perceptions. Conversely, perceived work improvement and motivation- and retention-related perceptions each contributed information beyond the general evaluation of development opportunities. Substantively, the model indicates that respondents' views of organisational competitiveness are associated with at least three distinguishable dimensions: the organisational provision and alignment of development, the perceived application of learning to work, and broader employee responses related to motivation and staying. This pattern is consistent with strategic HRM models that distinguish skill-enhancing and human-capital processes from

motivation-related employee responses (Jiang et al., 2012; Tharenou et al., 2007) and with evidence that competence and commitment can connect training investment with organisational outcomes (Choi & Yoon, 2015). Because the coefficients are associational, the model does not establish three causal pathways, but it does show that the observed relationships are not statistically redundant within this sample.

The sensitivity analysis strengthens the interpretive robustness of this conclusion. When the original three-item competitiveness indicator was used, the explained variance changed only modestly from 51.5% to 53.1%, and all three predictors remained statistically significant. This suggests that excluding the item that directly stated that investment in employee education contributes to competitiveness reduced conceptual overlap without materially changing the substantive pattern. The sensitivity analysis therefore supports the decision to use the narrower two-item competitiveness measure in the primary analysis.

The study also contributes by connecting employee-level and organisational-level perceptions within the same empirical framework. Much of the literature examines training transfer, employee attitudes, retention, human capital, or organisational outcomes in separate research streams. Here, development opportunities are examined simultaneously in relation to perceived work improvement, motivation and retention, and perceived organisational competitiveness. The contribution is therefore primarily integrative and associational: it shows that these domains are related in one heterogeneous sample while remaining conceptually and statistically distinguishable.

Managerial Implications

For organisations, the findings suggest that the provision of education alone is unlikely to be the most informative indicator of development quality. Managers should also consider whether development is aligned with job requirements, whether employees are encouraged to continue developing, and whether acquired knowledge and skills can be applied in everyday work. Evaluation of development should therefore extend beyond participation rates or training expenditure to include perceived work improvement and employee responses related to motivation and retention. This interpretation is consistent with research showing that the organisational value of training depends on its connection with learning, competence, commitment, and broader HR systems rather than on training investment in isolation (Sung & Choi, 2014; Choi & Yoon, 2015; Garavan et al., 2021).

The simultaneous regression results also have a practical implication for how development is monitored. Because development opportunities, perceived work improvement, and motivation- and retention-related perceptions each retained a separate association with perceived organisational competitiveness, collapsing them into a single overall training-satisfaction indicator could obscure useful differences. Organisations can distinguish between (a) access to and alignment of development opportunities, (b) employees' perceptions that learning improves skills, efficiency, and work quality, and (c) motivation- and retention-related responses. Such a distinction can help identify whether development is available but difficult to transfer into work, useful for work but weakly connected with retention-related perceptions, or positively evaluated across all three dimensions. The present results do not show that changing any one dimension will cause competitiveness to increase, but they indicate that employees do not appear to treat these dimensions as interchangeable.

Finally, the Croatian context and the sampling design delimit the scope of the findings. Respondents came from different economic activities, work areas, age groups, and levels of work experience, which provides heterogeneity across organisational settings. However, the non-probability online sample does not support

population-level generalisation. The findings are best interpreted as evidence that the proposed relationships are observable within this sample and are broadly consistent with established international research, rather than as estimates of the prevalence or magnitude of these relationships in the Croatian workforce as a whole.

Conclusion

This study examined how employee education and development opportunities are related to perceived education-related work improvement, motivation- and retention-related perceptions, and perceived organisational competitiveness. All three hypothesised associations were positive and statistically significant, and the integrated model showed that development opportunities, work improvement, and motivation- and retention-related perceptions each retained a separate positive association with perceived organisational competitiveness.

The study makes three main contributions. First, it provides an integrative conceptual framing that distinguishes development opportunities, human capital, proximal work-related outcomes, and perceived organisational competitiveness. Human capital is not measured directly in the study, but it provides a theoretical explanation for why development may be relevant to both employee-level and organisational assessments. Second, the empirical analysis shows not only that development opportunities are associated with each of the three examined outcomes, but also that development opportunities, perceived work improvement, and motivation- and retention-related perceptions are related to perceived organisational competitiveness in non-redundant ways when considered together. Third, the study provides a deliberately bounded employee-perception perspective on competitiveness by examining organisational adaptability and the perceived competitive value of employee knowledge and skills without equating these perceptions with objectively measured firm performance.

Taken together, these contributions support a differentiated view of employee development. Development is not simply equivalent to the human capital it may help build, and favourable employee responses should not be treated as substitutes for work-related improvement or organisational outcomes. The findings instead suggest that development opportunities, the perceived application of learning, motivation- and retention-related responses, and perceived organisational competitiveness form related but conceptually distinct domains. This distinction is particularly important when interpreting cross-sectional evidence, because observed associations can be theoretically informative without establishing a causal sequence.

For practice, the findings support evaluating employee development as a broader system rather than as a count of training activities. Organisations can separately monitor the relevance and alignment of development opportunities, employees' perceptions of work improvement, and motivation- and retention-related responses, and then consider how these dimensions relate to wider organisational assessments. Such monitoring cannot by itself establish effects on competitiveness, but it can provide a more diagnostic view of where development is perceived to create value and where gaps remain.

The study has several limitations. First, the cross-sectional research design does not permit causal inference. Second, all analysed variables are based on self-reported perceptions and may therefore be affected by common-method influences and respondents' subjective evaluations. Third, perceived organisational competitiveness is not an objective measure of organisational performance and does not include financial, market, innovation, or productivity indicators. Fourth, the questionnaire items were researcher-developed and grouped into conceptually defined composite

indicators rather than established validated scales. In particular, the primary competitiveness indicator consists of two items, while the motivation- and retention-related indicator combines several related but distinct employee responses. Finally, the non-probability online sample limits the generalisability of the results beyond the respondents included in the study.

Future studies could test the same relationships using longitudinal data, larger multi-organisation samples, and validated measurement instruments. Combining employee assessments with objective indicators of work and organisational performance would allow a clearer comparison between perceived and observed outcomes. Future research could also test whether work improvement, motivation, commitment, and retention operate as distinct mediating or moderating mechanisms and whether these relationships vary across industries, organisational types, occupational groups, and different institutional contexts.

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